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COOPERATIVE PLACEMENT ARRANGED WITH U. S. EMPLOYMENT SERVICE

The National Office of the Association is
pleased to announce a cooperative placement
service that will be of interest to many members.
The ASA has initiated this arrangement with
the United States Employment Service whereby
increased emphasis will be given to placement
for statisticians.

This placement service will be given to both
employers and applicants on a nationwide basis.
Any of the 1800 local offices of the State Employ-
ment Services will accept employer orders and
applications, and will effect clearances with other
offices and States as necessary. In 25 major cities
special offices have been established to provide
specialized placement services to professional
and scientific applicants and employers; because
of their highly trained staffs and special facilities
these offices can render particularly effective
assistance. Four of these special offices, located
in Boston, New York, Washington, and Dallas,
have been designated as "pilot offices" to explore
ways and means of improving services to pro-
fessional applicants and employers.

This emphasized service will be concerned with
all areas of professional statistical work. The
ASA is cooperating in the establishment of aids
to be used in the placement of statisticians and
in the interpretation of the statistical field to
the Employment Service. The ASA will also
indicate the type of employers whom the Em-
ployment Service might contact to obtain job
openings.

Local chapters have been asked to appoint a
liaison officer to work with the Employment
Service local office. Between them they will
develop a placement field for that particular
area. Information about any job openings ob-
tained by ASA members should be transmitted
to either their liaison officer or the local office
of the Employment Service.

Here is how you can participate in this pro-
gram: If you are looking for work in the statisti-
cal field, or if you, as an employer, have vacancies
for statisticians, get in touch with your State
Employment Service local office. With your co-
operation, this new arrangement for placement
assistance can render a valuable service to our
profession.

NEWS

ASA Annual Meeting at Montreal

About 750 persons registered for the 114th Annual Meeting of the American Statistical Association held in Montreal on September 10–13, 1954. The meeting was particularly successful in view of change of time and location. For the first time in many years the meeting was held in September rather than during the Christmas holidays, and for the first time in its history the Association held its Annual Meeting outside of the United States. All of the sessions were well attended, and in some instances it was necessary to remove meetings to larger quarters.

The social highlight of the Annual Meeting was a reception given by the City of Montreal for ASA members and their wives. This was held in the Chalet atop Mount Royal, which overlooks the city, and included a buffet dinner and dancing. It was considered by many to be one of the memorable evenings of an ASA Annual Meeting.

Binomial Probability Tables Available

A set of binomial probability tables has been prepared by Calvin J. Kirchen of the Lincoln-Mercury Division of the Ford Motor Co., intended especially as a handy guide for quality control practitioners. The tables, the numerical values of which were derived from the National Bureau of Standards tables, have the following characteristics: 1) Sample size, n: 4, 5 and all multiples of 5 through 45;

2) Lot fraction defective, P: .01 to .10 by .01; by .05 from .10 to .30; by .10 from .30 to .50;

3) Probabilities of the occurrence of *exact* numbers of defectives in the various sample sizes, given in columns headed by various values of x;

4) Probabilities of the occurrence of at most a specified number of defectives in the various sample sizes, given in columns headed by various values of c.

Uses of the tables and instructions on how to read them were included in a paper presented at the eighth annual convention of the American Society for Quality Control held at St. Louis on June 11, 1954. Copies of the paper and complete set of tables are available gratis by writing to Mr. Kirchen, 1507 Abbott, Ann Arbor, Michigan.

Statistical Sessions at AAAS Berkeley Meeting

The 121st Meeting of the American Association for the Advancement of Science to be held December 26–31, 1954 on the campus of the University of California at Berkeley will include more than 300 sessions of all 18 AAAS Sections and of some 90 participating organizations. Sessions which the American Statistical Association are co-sponsoring are shown in the program in this issue of the Western Regional Meeting of the ASA.

Other sessions which may be of particular interest to statisticians are being held by AAAS—Section A—Mathematics, and AAAS—Section L—Social and Economic Sciences. The General Program-Directory of the Meeting will be available the first week in December. The registration fee is $2.50. Persons planning to attend are urged to register in advance with the American Association for the Advancement of Science, 1515 Massachusetts Avenue, N.W., Washington 5, D. C.

The Third Berkeley Symposium on Mathematical Statistics and Probability, which will also be held at the University of California from December 27 to 31, is being sponsored by the Statistical Laboratory of the University of California with the cooperation of the Air Research and Development Command, the National Science Foundation and the Office of Naval Research. Several of the sessions are being co-sponsored by the American Statistical Association. Further information about the Third Berkeley Symposium may be obtained from Jerzy Neyman, Director, Statistical Laboratory, University of California.

Other statistical organizations meeting at Berkeley at the same time are the Institute of Mathematical Statistics and the Biometric Society, WNAR.

Statistical Publications Wanted

The newly-established Seminar of Statistics at the Free University Berlin (American Sector) asks for help in building up its library by sending statistical books, journals and papers. Also, statistical text-books are needed to give to students in financial distress. Material should be sent to Prof. Dr. Hans Kellerer, Freien Universitat Berlin, 29–31 Bachstelzenweg, Berlin-Dahlem, Germany.

Meeting of Statistics Section of Virginia Academy of Science

The Statistics Section of the Virginia Academy of Science met at Charlottesville, Virginia on May 7 and 8, 1954. Sixteen papers on statistics were presented, and the attendance for the various sessions ranged from thirty to fifty. R. A. Bradley and W. E. Cooke presided at the sessions as Chairman and Vice Chairman, respectively, of the Section. The following papers were presented on the program:

Three Decision Tests of Difference Between Two Means—D. B. Duncan, Virginia Polytechnic Institute

On a New Method of Analyzing Extreme-High Value Data—Julius Lieblein, National Bureau of Standards

Some Duplex Methods of Using Desk Calculators in Statistics—M. C. K. Tweedie, Virginia Polytechnic Institute

On a Problem in Fitting a Straight Line—W. S. Connor, National Bureau of Standards

Some Topics in Variance Component Analysis—W. A. Thompson, Jr., Virginia Polytechnic Institute

Statistical Analysis of Insonation Effects on Escherichia Coli—Miss Patricia Ripley. M. C. K. Tweedie, and D. Thompson, Virginia Polytechnic Institute

A Minimization Program—J. B. Jordan, U. S. Air Force

Optimum Transportation—M. DiCarlo-Cottone, U. S. Air Force

Automatic Programming—Miss N. Coplan, U. S. Air Force

Some Aspects of Abnormality of the Distribution of t —J. C. Layman and R. A. Bradley, Virginia Polytechnic Institute

Analysis of Pastural Data in Three by Three Latin Squares with Rows and Single Observations Missing —N. R. Thompson and C. Y. Kramer, Virginia Polytechnic Institute

Some Aspects of Statistics in Canada—G. L. Edgett, Virginia Polytechnic Institute and Queen's University

A Two by Two Factorial with Paired Comparisons— R. M. Abelson and R. A. Bradley, Virginia Polytechnic Institute

Testing One Sample Hypothesis Against Another— Lionel Weiss, University of Virginia

Current Research in Livestock Estimating—H. F. Huddleston, U. S. Dept. of Agriculture

Some Problems of Optimum Sampling—P. N. Somerville, Virginia Polytechnic Institute

A business meeting of the Section was held on May 7 and new officers elected were: W. S. Connor, National Bureau of Standards, Chairman; M. C. K. Tweedie, Virginia Polytechnic Institute, Vice-Chairman; C. Y. Kramer, Virginia Polytechnic Institute, who was retained as Secretary; and Lionel Weiss, University of Virginia, who was elected Section Editor, replacing W. A. Hendricks of the U. S. Department of Agriculture, whose term expired.

At the business meeting R. A. Bradley raised the question of affiliating the Statistics Section of the Virginia Academy of Science with the American Statistical Association as a Virginia chapter. This proposal was unanimously accepted and a petition has been submitted to the American Statistical Association for the formation of a chapter to be called The Virginia Academy of Science Chapter of the American Statistical Association. It was also noted that if this petition is favorably received, the elected officers will become the first officers of the new chapter.

SSRC Study of Labor Mobility

The Social Science Research Council has published a report on the survey of patterns and factors in labor mobility, 1940–50, undertaken by its Committee on Labor Market Research in collaboration with seven university research centers. The study was sponsored by the Department of the Air Force as part of a program to develop new methods for systematically determining the feasibility of military programs. Work-history data were collected by the Bureau of the Census from sample households in six cities—Chicago, Los Angeles, New Haven, Philadelphia, St. Paul, and San Francisco. The report was prepared for the Committee on Labor Market Research by Gladys L. Palmer with the assistance of Carol P. Brainerd. The preface was contributed by Paul Webbink, Vice-President of the Council.

The participating universities were the University of Pennsylvania, University of Minnesota, University of California (Berkeley and Los Angeles), Massachusetts Institute of Technology, University of Chicago, and Yale University. A list of the unpublished reports of the several university research centers is included in an appendix to the report.

This study, which is the most comprehensive one yet attempted in this field, provides information on the incidence of mobility at various levels of skill, the adaptability of the labor force to changes in industrial demand, and the effects of voluntary job changes in the improvement of economic position and in the knowledge and skills of workers. In addition to the analytical text, the report contains more than 60 statistical tables and extensive technical notes on problems of definition and classification, reliability of response, and sampling reliability of estimates.

Copies of the report, entitled "Labor Mobility in Six Cities," may be obtained from the Social Science Research Council, 230 Park Avenue, New York 17, N. Y. The price is $2.25 paper bound, or $2.75 cloth bound.

Social Science Research Council Fellowships and Grants

The Social Science Research Council will offer in 1955 the several types of fellowships and grants awarded in the present year, and in addition plans to hold two institutes in mathematics for social scientists in the summer of 1955. A more detailed announcement of the following offerings is to be issued in October, and applications for most types of awards will be due soon after the first of January.

Research Training Fellowships, predoctoral and post-doctoral, for "more advanced research training than that which is provided in the usual Ph.D. program." All Ph.D. requirements except the thesis must be met before tenure of fellowship may begin, but application need not be deferred until that point has been reached.

Faculty Research Fellowships, providing half-time support for research for three-year terms. Open to college and university social science teachers, normally not over 35 years of age.

Grants-in-Aid of Research, to aid scholars of established competence in meeting direct expenses of their own research projects. Not open to candidates for degrees.

Undergraduate Research Stipends, open only to college juniors, for supervised research during the summer and the ensuing senior year. Some appointees will be granted first-year graduate study fellowships for the next year.

Institute in Mathematics for Social Scientists, eight-week sessions to be held during the summer of 1955. Open to predoctoral and post-doctoral students and younger faculty members in social sciences who wish to improve their mathematical competence. A limited number may receive stipends.

Inquiries should if possible be made early in the autumn, so that there will be ample time for preparation of definite applications before the closing dates. Please address the Social Science Research Council, 726 Jackson Place, N. W., Washington 6, D. C.

Workmen's Compensation Statistics—Glossary of Terms

The International Association of Industrial Accident Boards and Commissions has published a bulletin, *Workmen's Compensation Statistics, Glossary of Terms*. The purpose of the bulletin is to standardize definitions of various terms used in the compilation of workmen's compensation statistics in order (1) to achieve comparability of the figures compiled by the several states and provinces; (2) to improve the quality of the statistics; and (3) to promote a better understanding of the data.

The standard definitions are not intended as legal definitions. They are stated in broad terms so that there would be no conflict with the legal provisions in any jurisdiction. The Association hopes that the use of the Glossary will eliminate situations where different states use different terms to cover the same concept; and also the use of the same term to represent altogether different concepts.

The bulletin was prepared by Maurice I. Gershenson, Chief, Division of Labor Statistics and Research, California Department of Industrial Relations, and is based upon the report of the Committee on Statistics to the 39th Annual Convention of the International Association of Industrial Accident Boards and Commissions, October 5, 1953. Copies may be secured from the Bureau of Labor Standards, U. S. Department of Labor, Washington, D. C.

Research Fellowships in Psychometrics

The Educational Testing Service is offering for 1955–56 its eighth series of research fellowships in psychometrics leading to the Ph.D. degree at Princeton University. Open to men who are acceptable to the Graduate School of the University, the two fellowships each carry a stipend of $2,500 a year and are normally renewable. Fellows will be engaged in part-time research in the general area of psychological measurement at the offices of the Educational Testing Service and will, in addition, carry a normal program of studies in the Graduate School.

Suitable undergraduate preparation may consist either of a major in psychology with supporting work in mathematics, or a major in mathematics together with some work in psychology. However, in choosing fellows, primary emphasis is given to superior scholastic attainment and demonstrated research ability rather than to specific course preparation.

The closing date for completing applications is January 13, 1955. Information and application blanks will be available about November 1 and may be obtained from: Director of Psychometric Fellowship Program, Educational Testing Service, 20 Nassau Street, Princeton, New Jersey.

THE FUTURE ANNUAL MEETINGS OF THE ASSOCIATION WILL BE HELD AS FOLLOWS:

	Headquarters	Dates
1954—Regional Meeting, Berkeley, Calif.	University of California	December 27-31, 1954
1955—New York City	Hotel Biltmore	December 27-29, 1955
1956—Detroit, Mich.	Hotel Sheraton-Cadillac	Sept. 7-10, 1956

FEDERAL STATISTICAL ACTIVITIES

Stuart A. Rice to Retire from Government Service

Announcement was made on August 11 that Stuart A. Rice will leave Government service on December 31, 1954. Mr. Rice has been in charge of the coordination of Federal statistical activities since 1935, first as Chairman of the Central Statistical Board and since 1939, when the Board was transferred to the Executive Office of the President, as head of the Office of Statistical Standards in the Bureau of the Budget. He has also served as U. S. Representative on the United Nations Statistical Commission since its establishment in 1946. He is a Fellow of the American Statistical Association and was its President in 1933. His successor as head of the Office of Statistical Standards has not yet been named.

In announcing his intention to retire this year Mr. Rice wrote to Rowland Hughes, Director of the Bureau of the Budget, on July 28:

"Confirming our recent conversations, this will record my intention to apply for retirement from Government service as of next December 31 at the close of business. I have been continuously employed by the Federal Government since August 1, 1933, and will reach the age of 65 on November 21 of this year. . . .

"My several positions in the Federal service during the past 21 years have carried different titles to describe a single purpose and a continuous effort. I came to Washington to further the development of a useful, efficient and integrated statistical system. I will leave the Bureau with the satisfaction of knowing that I have assisted in important advances toward that objective. The successor to my responsibilities will need all possible support for a continuation of the progress already made and I solicit that support for him from your own office, his governmental associates, the Congress, and the interested public.

"You have assured me of your concurrence in the objective toward which I have worked. Any opportunities to assist further in its attainment will always find me anxious to cooperate."

In his reply, dated August 10, Mr. Hughes stated:

"I have your letter of July 28 advising me that you will apply for retirement from Government service as of December 31, 1954 and, in accordance with our recent discussions, I accept your decision.

"It will be necessary for me to proceed promptly to the selection of your successor as Assistant Director, Office of Statistical Standards, and I thank you for this early confirmation of your retirement plans. . . .

"Your efforts during the past twenty-one years in improving the usefulness and efficiency of the statistical activities of the Federal Government and coordinating them into an integrated system have been exceedingly fruitful. Your part in accomplishment of what has been done is widely recognized, not only in Government circles, but throughout the Nation.

"It is of basic importance, as you note, that progress be steadily continued and you may be sure that I shall give my full support to that end."

The text of a resolution honoring Dr. Rice adopted at the Annual Meeting in Montreal, together with Mr. Herbert Marshall's remarks will be found elsewhere in this issue.

Secretary Mitchell Appoints Clague Special Assistant

Secretary of Labor James P. Mitchell has appointed Ewan Clague as Special Assistant to the Secretary of Labor to deal with overall economic and statistical problems with which the Department of Labor is concerned. The appointment was effective August 20, 1954. Mr. Clague was Commissioner of Labor Statistics from 1946 until his term expired on August 19, 1954.

Mrs. Aryness Joy Wickens, Deputy Commissioner of Labor Statistics, was named Acting Commissioner by Secretary Mitchell. She will serve as Acting Commissioner until the Congress reconvenes and can act upon nomination of a Commissioner. There will be no recess appointment to the position of Commissioner of Labor Statistics.

Principal Changes in Federal Statistical Programs for Fiscal Year 1955

The following summary presents brief descriptions of appropriation action and program changes for fiscal year 1955 (ending June 30, 1955) for the major statistical agencies of the Federal Government. The statements include figures for 1954 appropriations, 1955 Budget estimates as presented in the Budget Document issued early last January, and the final appropriations for fiscal year 1955.

DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

Marketing Research and Agricultural Estimates

1954 appropriation	$ 8,702,200
1955 Budget estimate	10,215,000
1955 appropriation	10,215,000

The 1955 Budget estimate included $5,100,000 for marketing research (an increase of $1,100,000); $1,027,000 for economic and statistical analysis (an increase of $167,000; and $4,088,000 for crop and livestock estimates (an increase of $245,800). These requests were approved in full by the Congress. The purpose of each increase is described below.

Marketing research. The increase of $1,100,000 will provide for initiation or expansion of research directed toward improved efficiency in the marketing system; protection, maintenance and improvement of product quality; and development of new and expanded market outlets for agricultural products. Statistical projects included in the new and expanded research are: (1) Commodity marketing with primary emphasis on measurement of margins and costs; analysis of market organization, practices, and policies; and improvement of marketing information and statistics; and (2) Market development research, including market testing and evaluating new products; analysis and evaluation of sales methods and commercial promotional activities; and market surveys.

Economic and statistical analysis. The increase of $167,000 will be used to strengthen the commodity and general outlook analyses and services at both the national and State levels, and to improve estimates of farm production expenses and income. Work will be initiated on the development of uniform methods and estimates of farm production expenditures by States in conjunction with the existing work on U. S. total

expenditures and net farm income, and on monthly cash receipts from farm marketings by commodities and States. Increased emphasis will be placed on basic study and analysis of factors affecting commodity price and income prospects, with greater attention to regional and area differences. Strengthening this work will provide the analytical basis for improvement in the current outlook work and aid in the heavy service work related to these analyses.

Crop and livestock estimates. The increase of $245,800 will provide new basic production data on selected commodities, or extension of coverage to aditional areas. Additional States and areas will be included in the weekly reports on broiler chick placement, and quarterly cattle-on-feed reports will be established for additional Corn Belt and Western States. Reports on turkey poult hatchings, by light and heavy breeds, will be initiated for about 10 of the major turkey fryer States. Work will also be expanded through more timely forecasts of the calf crop, estimating the extent to which vegetable fat substitutes are used in manufacture of certain dairy products, and initiation of production estimates on summer-crop potatoes in about a half dozen of the late-producing States. Nearly one fourth of the increase for this activity will be required to provide adequately for penalty mail costs, principally incurred in the necessarily extensive mailing of questionnaires and distribution of reports.

DEPARTMENT OF AGRICULTURE

Agricultural Research Service

Production Economics Research Branch

1954 appropriation	$1,283,000
1955 Budget estimate	1,481,000
1955 appropriation	1,379,000

An increase of $198,000 for production economics research was requested for fiscal year 1955, included in the larger appropriation item for "Research," for which a total of $35,350,000 was included in the 1955 Budget estimate. Although the full $35,350,000 was allowed by the Congress, the Department of Agriculture was directed to provide, within that appropriation, for specific increases totaling $550,000, primarily for research on grain crops. Thus the increase available for production economics research is limited to $96,000.

The $96,000 increase will be used for expanded economic research, in cooperation with the State Agricultural Experiment Stations, to help farmers reduce costs, shift production into more profitable lines, and overcome obstacles to achievement of economic balance in production. The number of representative farming situations for which analyses and recommendations can be made will be limited by the amount of the increase approved. Emphasis will be given to work in the wheat, cotton, and butterfat producing areas where farmers face particularly severe adjustment problems as a result of the price-cost squeeze and current and prospective market demand.

DEPARTMENT OF COMMERCE

Bureau of the Census

1954 appropriation	$ 8,370,000
1955 Budget estimate—initial	10,500,000
1955 Budget estimate—revised	32,780,000
1955 appropriation	30,630,000

The initial Budget estimate was submitted to the Congress before completion of the survey of Census programs conducted by the Intensive Review Committee headed by Ralph J. Watkins. It assumed continued deferral of the major census programs, and included $6,350,000 for the current program of the Census Bureau, $650,000 for continuation of the "spot check" program in lieu of censuses of manufactures and business, and $3,500,000 for a sample census of agriculture.

In its report to the Secretary of Commerce, the Intensive Review Committee strongly urged the restoration of the major censuses, including censuses of business, manufactures, and mineral industries covering the calendar year 1954 instead of 1953 as provided in the permanent authorizing legislation. Amending legislation was enacted in June to provide for censuses of business, manufactures and mineral industries covering the year 1954. Revision of budget estimates and a supplemental appropriation bill had the effect of substituting the major censuses for the "spot checks" and the sample census of agriculture which had been included in the initial estimate for 1955.

In the regular appropriation act the Congress appropriated $6,200,000 for the current program (a reduction of $150,000 from the estimate and $670,000 from the previous year), and $16,000,000 for a complete 1954 Census of Agriculture (a reduction of $2,000,000 from the estimate). In the supplemental appropriation act the Congress appropriated $8,430,000 (no reduction from the estimate) for 1954 Censuses of Business, Manufactures and Mineral Industries.

Censuses

In the conduct of the 1954 censuses great emphasis will be placed upon the need for prompt publication of results. Vigorous steps will be taken to assure that most of the data needed for the day-to-day problems of business and government will be released within 12 months.

The *1954 Census of Business*, like that for 1948, will cover retail trade, wholesale trade, and selected service trades, including personal, business, and repair services, hotels, motels, amusements, and the motion picture industry. The census will provide data for the continental United States, Alaska, and Hawaii. It will be conducted as a mail canvass of establishments which have employees, supplemented by the use of data from Internal Revenue Service income tax records for the "no-employee" establishments.

For the *1954 Census of Manufactures*, the mailing of forms to respondents will take place around the end of the present calendar year. The content of the 1954 census will follow closely that of previous censuses, with emphasis on product, materials, value added, employment, inventory, and capital expenditures detail. All manufacturing establishments, defined as those establishments with one or more employees engaged in manufacturing activities, will be covered. It is anticipated that many preliminary figures will be available before the end of 1955.

The Bureau of Mines and the Bureau of the Census have cooperated in developing the report forms for the *1954 Census of Mineral Industries* and will continue to cooperate in conducting, editing, and analyzing the census, the first since 1939. The Bureau of Mines commodity annuals covering mineral products will be suspended for 1954, with the product data collected on the census forms. In general, the forms will obtain information similar to that collected in the Census of Manufactures with the addition of such special inquiries as the cost of drilling oil and gas wells and types of loading equipment used. The inquiries with counterparts in the manufacturing area have been designed in a consistent manner with the manufactures census forms. It is planned that preliminary totals will become available in the latter part of 1955.

The *1954 Census of Agriculture* will mark a change in enumeration timing. For the first time, the census will be taken immediately upon the close of the crop year, rather than in the following January or April. Recruiting and training of field

personnel and establishment of special field offices are now under way, with canvassing due to begin in October and to be completed in December of this year. The basic questionnaire and field procedures are similar to those of 1950, including a 20-percent sample for some items. New items include questions on conservation and land-use practices and on use of fertilizer. An extensive listing job is being done in rural areas to insure complete coverage of farms, and a post-census coverage check will be made. Once again questionnaires will be mailed to farmers in advance of the enumerator's visit, except in the South. A landlord-tenant questionnaire will be used as an additional form in the South to assist in the coverage of multiple farm holdings. Part of the processing of returns will be done outside Washington. Preliminary county releases will begin to appear in January 1955.

A census of transportation was not included among the censuses for which authorization and funds were requested in 1954. In accordance with the recommendations of the Intensive Review Committee, the Secretary of Commerce has initiated a further review of the need for and feasibility of taking a census of transportation. It is expected that this review will lead to the formulation of a specific census program or to a recommendation for repeal of the statutory authority. Meanwhile, the Census Bureau plans to continue a limited amount of experimental and exploratory work, especially with regard to the feasibility of applying sampling techniques to produce reliable and comprehensive data of a census type.

1955 current programs

It is hoped that certain special factors may enable the Census Bureau to maintain its current programs at about the previous year's level, despite the considerable cut in funds available—from $6,870,000 in fiscal 1954 to $6,200,000 in fiscal 1955. The most important elements offsetting the effects of the cuts are savings through the use of Univac and savings in administrative costs and processing costs resulting from some of the recommendations of the management survey of Bureau operations.

Agriculture. The series of reports on cotton ginning statistics will be continued, since the Congress failed to approve legislation reducing the number of reports.

Business. The Monthly Retail Trade Report, which is based on reports from a probability sample of retailers in 230 sample areas and which provides monthly measures of the dollar volume of retail trade for important kinds of business in the United States and census regions, will be continued. The Advance Retail Sales Report, providing estimates of retail sales volume for major retail groups 10 days after the close of the month, will also be continued. The Monthly Wholesale Trade Report in fiscal 1955 will be based on the probability sample introduced during the previous fiscal year and will provide dollar volume estimates of sales and end-of-month inventories by kind of business. The reports on canned foods and on secondary inventories and storage capacity of petroleum products will be continued. Several experimental programs initiated under the 1954 "spot check" program will be completed with good prospects of leading to the establishment of regularly published series. These include retailers' end-of-month dollar inventories and end-of-month inventories of used cars. Experimental work on the commodity flow program will be continued.

Foreign Trade. The changes to be made in the foreign trade statistics program have not yet been determined but probably will not be of major proportions.

Governments. The basic program of governments statistics will remain unchanged.

Industry. It is anticipated that the content of the Bureau's current industrial statistics program will continue at about the same level during fiscal 1955 as in fiscal 1954. Budgetary reductions in fiscal 1954 necessitated a number of cuts in the "Facts for Industry" program, principally in the form of less product detail, as in the reports on heating and cooking equipment and on woolen and worsted manufacture. In others, such as the monthly report on clay construction products, some geographic detail was eliminated. It is expected that improvements in the collection and processing procedures for the current surveys will result in the speeding up of the published results.

Population and Housing. The basic program will continue, with minor reductions in content. The Current Population Survey sample has been expanded from 68 to 230 areas, with improved estimating procedures, and will remain on that basis, subject to further improvements, as circumstances permit, along lines recommended by the Secretary's Special Advisory Committee on Employment Statistics appointed last February.

Statistical compendia. The regular publication program of the Statistical Abstract and its supplements will continue. The 75th anniversary edition of the Abstract will appear in the fall. The 1953 edition of County Business Patterns will also be published in the fall; there will be no 1952 edition. Tentative plans have been drafted for the preparation of a new edition of Historical Statistics of the United States.

Field operations. The number of permanent field offices has been cut to five regional offices and 34 district offices, with strengthened staff. There will be a further reduction to 31 permanent district offices. However, there will be a temporary expansion to 119 offices to supervise the enumeration phase of the agriculture census and 26 field processing offices for that census. Field organization for the censuses of business, manufactures, and mineral industries cannot yet be specified.

DEPARTMENT OF COMMERCE

Business and Defense Services Administration

Construction statistics program

The regular 1955 Budget estimate for the Business and Defense Services Administration provided for only minor improvements in construction statistics. The 1955 Supplemental Appropriation Bill, however, included a request for $1,000,000 to BDSA for an improved construction statistics program.

Present data on construction have been widely criticized as inadequate and incomplete, largely as a result of successive budgetary limitations. The new program was designed to provide accurate statistics for use in public policy decisions affecting public works planning and antirecession measures, mobilization planning, monetary and credit policy; and for use in private policy decisions regarding investments, market research, production scheduling, etc. The $1,000,000 requested included $490,000 for transfer to the Bureau of the Census and $250,000 for transfer to the Bureau of Labor Statistics for their participation in the coordinated program.

A detailed program was submitted, including specific projects for (1) improving estimates of new construction expenditures, by major type of construction and by State; (2) preparing quarterly estimates of expenditures for alterations and repairs for all major categories of construction; (3) improving the building materials production index by obtaining production and shipments data for important building materials for which current reports are now lacking; (4) developing a new series of materials requirements data; and (5) providing semi-annual data showing vacancy rates in housing.

The House disallowed the request entirely, and the Senate

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voted to allow $600,000. In the final enactment of the supplemental appropriation, the total request for the construction statistics program was disapproved.

DEPARTMENT OF COMMERCE

Office of Business Economics

1954 appropriation	$ 911,600
1955 Budget estimate	1,010,000
1955 appropriation	900,000

The 1955 request to Congress contained an increase of approximately $100,000 to provide for a study of business fluctuations, with further study and research on business investment, and a study of consumer savings by occupational groups. The increase requested was disallowed, and the total appropriation for the Office of Business Economics reduced to $900,000.

As a result of Congressional action on the budget, it will not be possible to undertake the additional research on business investment and on individual savings. No major changes will be made in the OBE program during fiscal year 1955.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Public Health Service

National Office of Vital Statistics

1954 appropriation	$ 1,286,000
1955 Budget estimate	1,295,500
1955 appropriation	1,282,000

For fiscal year 1955 the only increase requested for the National Office of Vital Statistics in the Budget estimate was $9,500 to cover increased penalty mail costs. Although no specific reductions were made by the Congress in the vital statistics program, reduction of the amount allowed for "Assistance to States, General" (the larger appropriation item which includes funds for vital statistics) results in a small decrease for fiscal 1955. The 1955 appropriation also continues the limitation established by the Congress in the 1954 appropriation on the amount of funds to be used for personal services. As a result progress in reducing the time lag in the publication of vital statistics reports will continue to be limited.

Birth statistics for 1953 and 1954 continue to be based on 50 percent of the registration. Work on special studies will remain at a very low level through the fiscal year 1956. Technical assistance to State vital record and statistics programs will be confined to cooperation with the Public Health Conference on Records and Statistics (the technical organization of State personnel), and work with individual States will be curtailed or deferred.

DEPARTMENT OF LABOR

Bureau of Labor Statistics

1954 appropriation	$ 5,394,295
1955 Budget estimate	5,396,000
1955 appropriation	5,350,000

The 1955 Budget estimate did not request funds for any major program changes in the Bureau of Labor Statistics. It provided an increase of $151,000 for penalty mail costs, offset almost entirely by decreases in two programs as a result of the completion of special projects for which additional funds had been available in the previous year, and by miscellaneous cuts, mainly in nonprogram items.

Major programs of the Bureau of Labor Statistics for fiscal year 1955 are described in the following paragraphs:

Manpower studies and employment statistics. The basic program in the manpower and employment statistics field will remain unchanged from the past fiscal year. Continued emphasis will be given to the collection and analysis of current employment developments. Additional work will be done looking toward the improvement of the BLS labor turnover statistics. In the manpower and occupational outlook field, additional emphasis will be given to studies of requirements for scientific workers, including those needed for industrial research and development.

Wages and industrial relations. The program will not differ significantly from fiscal 1954. Approximately the same number of community, union scale, and industry wage surveys will be undertaken. A major study of the distribution of factory workers by wage rates or straight-time earnings, begun in fiscal 1954, will be completed at some sacrifice of other survey work. Studies of collective bargaining agreements and other analytical work in industrial relations will continue at about the fiscal 1954 level. Statistics of work stoppages will be compiled as usual.

Prices and costs of living. The program will be continued on effectively the same basis as during fiscal 1954. Revisions in the weighting diagram for the Wholesale Price Index reflecting 1952–53 relationships will be incorporated during the coming year. In addition the products used currently in the WPI will be regrouped to represent processing stage categories (raw, semifinished, finished). There may be some reordering of the frequency of price collection and the list of item coverage for the Consumer Price Index.

Productivity and technological developments. It is planned to publish during the year overall productivity series for manufacturing and for broad industry groups based on data from secondary sources. As in the past, indexes for a limited number of individual manufacturing industries will be released. To the extent that resources permit, trends in broad nonmanufacturing segments will be started.

Construction statistics. The main elements of the program during fiscal 1955 will continue to be the monthly series on new nonfarm housing starts and the estimated total expenditures for construction. Rebasing of the starts series in line with 1950 census information has been completed and the revised series to be prepared this year provides for the first time separate starts for the four geographic regions and their metropolitan and nonmetropolitan divisions. A new series on building authorized in all permit-issuing places of the United States replaces the previously published estimates of urban building; separate estimates are being shown for selected metropolitan areas.

An additional $110,000 was also requested for BLS in the 1955 Supplemental Appropriation Bill to allow for urgently needed improvements in BLS construction statistics. This request was coordinated with the request of the Business and Defense Services Administration for funds for an improved construction statistics program. The BLS request, which was also disallowed by the Congress, was primarily to provide for work on labor requirements for construction and a survey of residential builders.

Other programs. The BLS will continue its current programs in Industrial Hazards and Foreign Labor Conditions.

FEDERAL TRADE COMMISSION

Financial reports

1954 appropriation	$ 136,700
1955 Budget estimate	282,900
1955 appropriation	134,500

An increase of $146,200 was included in the 1955 Budget estimate to provide for extension of the financial reporting program conducted jointly by the Federal Trade Commission and the Securities and Exchange Commission. The additional funds were requested to enlarge the scope of the program to include wholesale and retail trade and mining corporations, in addition to the manufacturing corporations now covered; to prepare preliminary estimates; and to draw a new sample of reporting companies on the basis of 1953 income tax returns of manufacturing, mining, and trade corporations.

The increase of $146,200 was specifically denied by the House. The Senate allowed $46,200 for expansion of the program beyond the manufacturing level, but this smaller increase was also eliminated in conference. Therefore it will not be possible this year to expand the financial reporting program to include trade and mining corporations or to draw a new sample of manufacturing corporations. Attempts will be made to produce preliminary estimates within the present budget, but it is not expected that any such estimates which are made will be sufficiently reliable for publication.

Committee Report and Hearings on Economic Statistics

Committee report

The Subcommittee on Economic Statistics has presented a progress report to the Joint Committee on the Economic Report, following exploratory hearings on economic statistics which it held on July 12 and 13. The following preliminary findings and recommendations are set forth and discussed in the subcommittee's report:

1. Private economic interests and Government policymakers require an increasing quantity and improved quality of economic statistics.

2. The principal stumbling block to providing an adequate economic statistical program is the lack of financial support.

3. Administrative agencies which produce statistics as a by-product should be encouraged to recognize their obligations to the statistical system.

4. Greater emphasis on the development of an overall program of economic statistics by the executive branch of the Government is needed.

5. More attention should be given by Federal agencies to studying concepts and methods of operation, and to setting forth the limitations of the data appearing in their published reports.

6. A section on economic statistics should be included in the President's annual budget and more consideration given to an adequate economic statistics program in the President's Economic Report.

7. The subcommittee recommends that the full committee devote one panel session to economic statistics at its hearings next year, preliminary to submitting its own report to the Congress on March 1.

8. Adequate and timely benchmark data from regular censuses of agriculture, business, manufactures, minerals, and State and local government are desperately needed.

9. The Federal Reserve System might well expand its statistical collection and analysis programs where it has special interest and competence.

10. The staff is directed to proceed with the revision of "Economic Indicators."

11. The committee staff is directed to keep the subcommittee informed of progress on revisions and improvements underway or proposed.

The subcommittee report has been printed (83rd Cong., 2nd Sess., House Report No. 2628), and is available on request to the Joint Committee on the Economic Report, U. S. Congress, Washington 25, D. C.

Hearings

The text of the hearings on economic statistics held by the subcommittee on July 12 and 13, with supplementary documents and statements, has been printed as a 363-page document entitled "Economic Statistics." The document contains the statements made by Donald R. Belcher, Assistant Director of the Bureau of the Budget; Arthur F. Burns, Chairman of the Council of Economic Advisers; and the twelve experts invited to comment on data in particular areas:

Martin R. Gainsbrugh, Chief Economist, National Industrial Conference Board, on general concepts

Boris Shishkin, Director of Research, American Federation of Labor, on labor (presented by Bert Seidman)

Paul W. McCracken, Professor of Business Conditions, University of Michigan, on finance

Kenneth E. Miller, Manager, Economic Research Department, Armour & Co., on agriculture and food

Hazel Kyrk, formerly Professor of Economics, University of Chicago, on consumer income and expenditures

James W. Martin, Director, Bureau of Business Research, University of Kentucky, on State and local government

Isador Lubin, Economist Consultant, Chairman of Executive Committee, Franklin D. Roosevelt Foundation, on labor and foreign economics

Miles L. Colean, Consulting Economist, on construction

Rensis Likert, Director, Institute for Social Research, University of Michigan, on consumer expectations

Arthur Rosenbaum, Manager, Economic Research Department, Sears, Roebuck & Co., on retail trade

Irwin Friend, Professor of Economics, University of Pennsylvania, on savings and investment

Lester S. Kellogg, Director of Economic Research, Deere & Co., on business and agriculture

Participants in the hearings from Government agencies included Stuart A. Rice, Assistant Director for Statistical Standards, Bureau of the Budget; Robert W. Burgess, Director, Bureau of the Census; Ewan Clague, Commissioner of Labor Statistics; Louis Paradiso, Assistant Director, Office of Business Economics; Winfield W. Riefler, Assistant to the Chairman, Federal Reserve Board; and Oris V. Wells, Administrator, Agricultural Marketing Service.

The printed hearings also include documentary material submitted at the subcommittee's request. Among these are the Budget Bureau's "Memorandum on economic statistical programs of the United States," which includes an examination of the adequacy of specific series for use in economic analysis as well as general material on the organization and financing of Federal statistics; the Council of Economic Advisers' "Memorandum on statistical needs," which suggests improvements needed in existing data, in promptness of reporting, in presentation of data, and in filling gaps. There are also detailed statements on improvements needed in Federal statistical programs by the Board of Governors of the Federal Reserve System, Agricultural Marketing Service, Bureau of the Census, Business and Defense Services Administration, Office of Business Economics, Bureau of Mines, Bureau of Labor Statistics, and Bureau of Employment Security.

Copies of the hearings may be obtained, under the title "Economic Statistics," from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at $1.50 each.

JOHN LEHMAN, *Clerk*
Joint Committee on the Economic Report
United States Congress

Statistics of Income—Accelerated Publication

The Internal Revenue Service is engaged in an accelerated publication program for the annual financial statistics presented in the Preliminary and Complete Reports, *Statistics of Income, Parts 1 and 2*. During the 15-month period, June 1953 through August 1954, the Statistics Division issued 12 reports. For Part 1 (individual and fiduciary income tax returns), complete reports were issued during this period for 1946 through 1950; preliminary reports were issued for 1950 and 1951. For Part 2 (corporation income tax returns), complete reports were issued for 1948, 1949 and 1950; and preliminary reports for 1950 and 1951.

The publication dates and prices for each of these reports are:

Report	Month Issued	Price
1946 Part 1—Complete Report	June 1953	$1.00
1947 Part 1—Complete Report	July 1953	1.25
1948 Part 1—Complete Report	Nov. 1953	1.25
1948 Part 2—Complete Report	Nov. 1953	1.25
1949 Part 1—Complete Report	Apr. 1954	1.50
1949 Part 2—Complete Report	Dec. 1953	1.00
1950 Part 1—Preliminary Report	July 1953	.20
1950 Part 1—Complete Report	Aug. 1954	1.00
1950 Part 2—Preliminary Report	June 1953	.15
1950 Part 2—Complete Report	July 1954	1.00
1951 Part 1—Preliminary Report	June 1954	.20
1951 Part 2—Preliminary Report	July 1954	.35

Copies of all these reports may be purchased, at the prices indicated, from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

The publication schedule for the 1952 Preliminary Reports, Parts 1 and 2, will also be advanced by about six months, to early 1955. Part 2 (Corporations) of the 1952 Preliminary Report has been redesigned to include two of the most frequently used tables of the complete reports, both of them showing major industrial groups: Table 1, Sources of income and deductions, by type, for all returns and for returns with net income; and Table 2, Assets, liabilities, receipts, and deductions, by type, for all returns with balance sheets and for returns with net income.

HELEN F. DEMOND, *Chief,*
Statistics of Income Section,
Statistics Division,
Internal Revenue Service

Report on Manpower Resources in Mathematics

The National Science Foundation has published a report on "Manpower Resources in Mathematics," presenting the results of a study conducted jointly by the National Science Foundation and the Bureau of Labor Statistics. The report is based on a 1951 survey conducted by the National Scientific Register, as part of a registration program covering the natural sciences. Subjects on which information is presented are the relative numbers of mathematicians and graduate students specializing in the various branches of mathematics; their age, sex, citizenship status, military status, and educational background; the industries and types of work in which they were employed at the time of the survey; and their yearly professional income. The report incorporates data presented in a summary bulletin published earlier, with much additional statistical information.

Copies of "Manpower Resources in Mathematics" may be purchased, at 20 cents each, from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Continuation of Historical Statistics of the United States

The Bureau of the Census has recently issued the *Continuation to 1952 of Historical Statistics of the United States, 1789–1945*. This publication presents data for 1946 to 1952, for the current series shown in Historical Statistics, and also presents the latest revisions for many of the series included in that volume.

Prior to the issuance of this Continuation, the series in Historical Statistics were carried forward and revised by means of an "Historical Appendix" included in the 1949 to 1952 editions of the annual *Statistical Abstract of the United States*. The new publication consolidates, completes, and supersedes the figures shown in those appendixes. The annual Statistical Abstract, however, will continue to include that portion of the "Historical Appendix" which provides a cross-reference between the Historical Statistics series and the current data for those series which appear in the Statistical Abstract.

Present plans contemplate the issuance of a completely revised edition of Historical Statistics within a few years. To maintain the usefulness of the present edition during the interim period, this Continuation has been designed especially for use in conjunction with it.

Copies of the *Continuation to 1952 of Historical Statistics of the United States, 1789–1945* at 55 cents a copy, and copies of *Historical Statistics of the United States, 1789–1945* (now in its fourth printing) at $3.25 a copy, may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

WILLIAM LERNER
Office of Assistant Director
for Statistical Standards
Bureau of the Census
Department of Commerce

Federal Statistical Directory

The 16th Edition of the *Federal Statistical Directory*, dated June 1954, has been issued by the Office of Statistical Standards, Bureau of the Budget. The Directory lists, by organizational unit within each agency, the names, office room numbers and telephone numbers of professional and technical personnel of Federal agencies engaged in statistical activities, including reporting, planning, research, data collection, and analysis in economics and other fields of social science. The names included were supplied by the respective agencies.

Distribution of the Directory is made primarily by the agencies, and copies are generally sent to all individuals listed. This year, for the first time, the *Federal Statistical Directory* is also available as a sales publication to nongovernmental individuals or organizations. The price is 75 cents per copy, and orders should be sent to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

LOUISE C. GRIFFITH
Office of Statistical Standards
Bureau of the Budget

1950 Population Census Report on Occupation by Industry

A report from the 1950 Population Census presenting a detailed cross-classification of occupation by industry for employed males and females in the United States has been issued by the Bureau of the Census. The report provides information on the occupational structure of each industry and, con-

versely, the industrial distribution of the workers in each occupation. Considerable use of these data has already been made by a number of private and government agencies to whom advance copies of the basic table have been available for some time.

This report is identified as *U. S. Census of Population: 1950*, Vol. IV, *Special Reports*, Part 1, Chapter C, Occupation by Industry, or as 1950 Census Bulletin Series P-E, No. 1C. It may be purchased for 50 cents from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

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DAVID L. KAPLAN
Population and Housing Division
Bureau of the Census
Department of Commerce

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Consumer Prices in the U. S., 1949–52

The Bureau of Labor Statistics has recently issued Bulletin No. 1165, "Consumer Prices in the United States, 1949–52," which contains a brief analysis of trends in retail prices and summary tabulations of index numbers based on prices collected for the BLS Consumer Price Index for the four-year period. This bulletin brings up through December 1952 the historical record of the official index, in continuation of data for the years 1942–48 presented in Bulletin No. 966. It also contains the unadjusted "Old Series" index data through June 1953, when that series was discontinued.

Index numbers are given for major groups of items and for selected subgroups and individual items on the 1935–39 = 100 base. The Bulletin contains a listing of the items included and their relative importance as of January 1950 and December 1952. The index weight structure, and items included in the calculation of these series do not reflect changes that were made in the recent comprehensive revision of the Consumer Price Index. These latter changes were introduced into the index calculation effective January 1953.

Copies of Bulletin No. 1165 may be obtained from the Superintendent of Documents, U. S. Government Printing Office, for 45 cents each.

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ABNER HURWITZ, *Chief*
Branch of Cost of Living
Bureau of Labor Statistics
Department of Labor

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Insured Unemployment Data—New Release and Technical Note

The Bureau of Employment Security has begun the regular release of State insured unemployment figures for major labor market areas. The release, which is attached once a month to the regular weekly BES release on "Unemployment Insurance Claims," presents the volume of State insured unemployment in 145 major labor market areas for the week ending nearest the 15th of the month. The labor market areas covered are those classified regularly under the BES reporting program on the adequacy of the labor supply in local areas, except that the four off-continent areas of Honolulu, Mayaguez, Ponce and San Juan are omitted. The first release accompanied the report for May 8, 1954 and presented insured unemployment for the selected week in April and in March.

A new description of the "Source, Nature, and Limitations of Insured Unemployment Statistics" has also been issued by the Bureau of Employment Security. The new technical note reviews certain administrative aspects of the State unemployment insurance programs which relate to the nature and limitations of the data, and the methodology used in arriving at insured unemployment data. The description first appeared in the April 1954 issue of *The Labor Market and Employment Security*, and reprints are available upon request to the Division of Reports and Analysis, Bureau of Employment Security, Washington 25, D. C.

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DANIEL DARLING, *Chief*
Activity Analysis Branch
Division of Reports and Analysis
Bureau of Employment Security
Department of Labor

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BLS Handbook of Historical Statistics on Construction

The Bureau of Labor Statistics has issued as Bulletin No. 1146, a handbook presenting historical information on all of the series on construction developed in the Department of Labor. This Bulletin, entitled "Construction During Five Decades," contains a brief text and charts that describe broad movements in construction and its place in the general economy, and detailed statistical tables that show data by geographic region, State, metropolitan area and city, for all series on which area information is available.

The major statistical series on construction shown in Bulletin 1146 are: nonfarm housing starts; new construction expenditures; urban building authorized; Federal contract awards; residential rents; building materials prices; employment, hours, and earnings; union wage scales; work stoppages; work injuries; apprentice training; and union membership.

Copies of "Construction During Five Decades" (BLS Bulletin No. 1146) may be purchased at 45 cents a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

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H. E. RILEY
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A SYMPOSIUM ON AN INTEGRATED SYSTEM OF STATISTICAL INTELLIGENCE*

PROPOSALS FOR A FEDERAL STATISTICAL SYSTEM IN THE UNITED STATES

ARYNESS JOY WICKENS

Acting Commissioner of Labor

Statistics

U. S. Dept. of Labor

The theme of this symposium is "An Integrated System of Statistical Intelligence." The subject of my paper, "Proposals for a Federal Statistical System in the United States," should be understood in the light of this broader theme. This particular title seems to imply that the United States does not have a statistical system, nor any statistical intelligence, and this I certainly do not intend. Perhaps the paper should be entitled, instead, "Proposals for Improvements and Further Integration in the Federal Statistical System."

The statistical mechanism of the United States Government is an intricate one. It has evolved gradually, with all the idiosyncrasies of any evolving social mechanism. It is, in effect, a decentralized system, in which collection and analysis of statistics are associated in large measure with the functions performed by the several departments and agencies. Thus it follows, in general, the functional lines of the Federal Government. In such a framework, it is appropriate that statistics of agriculture should be gathered and issued by the Department of Agriculture, and statistics of revenues, including shipments of liquor and tobacco, by the Treasury Department; that the annual duck census should be taken by the Fish and Wildlife Service; that labor statistics should emanate from the Department of Labor; that statistics of health should come from the Public Health Service; and that the reports on the number of persons covered by old age and survivors insurance should come from the Department of Health, Education, and Welfare.

There are, to be sure, certain general-purpose statistics, which serve the government and people as a whole, whose present location is due partly to historical accident. Some of them are located in the Bureau of the Census, which collects data on such assorted subjects as family income, and drainage and irrigation; some are in the Bureau of Labor Statistics, whose current economic indicators provide measures of trends in a number of economic areas, ranging from employment and hours of work, to cost of living, wholesale prices, and housing; some are in the Federal Reserve System, which issues not only monetary and banking statistics, but also such general-purpose series as indexes of industrial production, department store sales and stocks, and makes the annual surveys of consumers' purchases of durable goods, and their liquid assets. In part, the location of these collection and assembly mechanisms is the result of historical accident, but none the less, the work is effectively done.

It may appear to the uninitiated that this mechanism is nothing but a maze through which only a skilled guide, with a statistical Baedecker well illustrated with maps, can find his way. Still, the United States statistical mechanism is a system of a sort. It works, and it has its virtues. Its principal virtue is that the collection of data, by and large, is in charge of the people who analyze, interpret, and use these data. However, we would not necessarily recommend it to other countries which are considering setting up a new statistical system, for it might not meet their needs.

The real test of any series of statistics is whether it answers the questions which an administrator, a policymaker, or a private citizen using the data wishes to have answered. Every study of the statistical system of the Federal Government—from the Bureau of Efficiency in the 1920's through the Committee on Government Statistics and Information Services in the early 1930's, to the Task Force of the Hoover Commission headed by Professor Frederick C. Mills in 1949—has agreed that the principle of decentralization is the most effective one for our purposes in the United States, and has, in consequence, devoted its attention to mechanisms for the coordination of Federal statistics, the avoidance of duplication, and ways to make the general system more effective.

The Task Force report of Professor Mills' group to the Hoover Commission sets forth, as a principal test of sound allocation of responsibility for statistics, what is called the "focal point" principle—namely, that responsibility for and administration of a given statistical area should focus in the agency most centrally responsible for the particular function or subject matter in question, in the expectation that this would lead to greater integration of subject matter. The Office of Statistical Standards of the Bureau of the Budget and its predecessor, the Central Statistical Board, have done much to further coordination and to make this decentralized system much more effective.

I should like to devote my attention to problems of further integration in the *content* of statistics, and to statistical gaps that need to be filled in order to achieve better integration, rather than to organizational structure.

I believe that statistical integration requires, first of all, a fresh look at our statistical tools to see whether they are in fact designed to answer the questions of the mid-twentieth century, or whether they are still of prewar design. To be sure, the Office of Statistical Standards of the Bureau of the Budget reviews statistical programs annually, and has made many valuable suggestions for their improvement and enlargement. But it must deal primarily with programs that are submitted by the several departments and agencies. Consequently, it is in the field of general-purpose statistics and, if you like, with *integrated* statistics which answer broad questions that the gaps are most likely to occur. "What is everybody's business is nobody's business."

Given our decentralized statistical system, each department or agency seeks first to answer questions essential to its immediate area of responsibility. This is not surprising, nor is it too serious if each agency performs its functions well. For example, the Department of Agriculture covers a very wide range of data from farm to market, in a most comprehensive system of statistics. No doubt they could be improved in detail, but they are integrated in the sense that they hang together, and they answer many very practical questions of importance not only to the farmers, but for public agricultural policy, both national and international. But they are not integrated with other Federal statistics in that, for instance, the farm employment and income data cannot be readily compared with nonfarm data collected by other agencies.

In the functions assigned to the monetary and banking agencies of the Government, the statisticians of the Federal Reserve System have performed with great skill for many years, assembling a set of data which is among the finest of its kind in the world. The summary of statistics for all banks in the United States issued in the annual reports of the Federal Deposit Insurance Corporation has provided since the mid-1930's an excellent integrated set of data on banking. Here again, certain improvements could perhaps be made, but there do not appear to be major gaps. With respect to Government finances—that is, the revenues, expenditures, and fiscal operations of the Federal Government—there exists a vast maze of data, some very good, others much less intelligible and comprehensible to the layman.

In the area of labor statistics, the Department of Labor can answer questions on trends and levels of employment, hours and earnings, on prices consumers pay, on unemployed workers receiving compensation, on industrial injuries, on industrial disputes, on wage rates by occupation in selected areas, and on other related subjects which are encompassed by its statutory responsibility. The Census provides data on unemployment monthly. Here again there are gaps, but efforts are constantly being made to fill them.

In the area of social problems, much progress has been made since the establishment of the Social Security Board. However, governmental responsibility for much of this area is reserved to the States, such as education, the administration of relief and other forms of public assistance, of the courts, of workmen's compensation, etc., and there are still big gaps in factual reporting. Here is a real field for integration in the organizational sense—i.e., between the States and the Federal Government, with a view to uniform standards and more comprehensive reporting.

However, there is one functional field of economic statistics in which I believe that comparatively little progress has been made in the last twenty years—namely, the industrial economy. It was here that the greatest gaps were found during World War II and the Korean emergency. The fact is, we do not have a comprehensive, sensitive, current description of the functioning of the industrial economy, as opposed to the agricultural economy—that is, of manufacturing, of mining, of transportation (except for interstate commerce), of distribution through whatever middlemen serve the industry, and of distribution to the consumer

at retail. We have inadequate mechanisms for finding out who uses what materials, and we know little about the stages of processing.

These are the kinds of data which are basic in answering questions, for example, about the feasibility of mobilization plans, or in providing a take-off point in judging how to set up controls of scarce materials, were they again to be needed. These missing data are basic to the improvement of the statistical aggregates of industrial operations which have constituted the important new statistical programs of the past two decades —the Gross National Product and the interindustry relations analyses. These over-all statistics of industry are descriptive in character. For our mid-century needs, they should tie together on a product and industry basis, and, for some purposes, on the basis of the kind of process involved in their manufacture.

Nevertheless, however much we need them, the fact is we do not have adequate current or even recent data in these fields. There are lacking, first of all, the comprehensive benchmarks which only censuses can provide. Statisticians know all too well that there has been no Census of Manufactures since 1947; that the Census scheduled to be taken for the year 1953 was disallowed; and worst still, that no one knows *when* the next Censuses of Manufactures will be taken. The Census of 1947 was in many respects far from satisfactory, for 1947 was a most exceptional year, far too close to the war's end, and it gave a very different picture than would a cross section taken in 1953. But it is all there is, except for samples, and bits and pieces. Likewise, there is no up-to-date Census of Distribution. Everyone knows that distribution channels have changed, although no one knows how much, over-all. In transportation, data on railroads have long been extensive, but there has never been a census of the trucking industry, though its share in transport has grown constantly.

These lacks hamper over-all analyses such as the calculations of the Gross National Product and the more recently developed interindustry analyses. It cannot be too strongly emphasized that for solid groundwork in an integrated system of industrial statistics, no sample ever can replace a Census. As long as we do not have Censuses, we will not know, in fact, how good or bad our data, and hence, our conclusions, are.

Moreover, in the absence of such benchmarks as Censuses provide, it becomes exceedingly difficult to organize any current sample system of reports in order to maintain a more up-to-date picture of relationships for important segments of industry. The basis for integration of industrial statistics thus lies in a comprehensive and enlarged set of Census reports, giving much more detail than we have hitherto had on materials and their use, and on the processes and functioning of the industrial mechanism as such. Moreover, it is my personal opinion that these Census benchmarks are needed more often than once every five years, as is the present plan for the Census of Manufactures.

Turning now to current weekly, monthly, or quarterly data, as opposed to benchmarks, there is the question whether industrial statistics in the United States are really adequate for current purposes—whether they, in fact, will enable us to call a turn in the volume of activity, to locate it geographically and industrially and in terms of levels of distribution, or to measure the height or depth of a cycle. Here the tests are, first, do the statistics exist at all, and if they do, second, are they satisfactory in terms of coverage, of classification, of timeliness, and of tieing in with other data? The problem is to determine more clearly and rapidly the what, the when, and the where; the why and the what next may then be more understandable.

We think at once, of course, of some of the time-tested general-purpose statistics which describe trends in particular phases of industrial activity, or in particular functions of the economy—such as the Federal Reserve Board index of industrial production and the comprehensive reports on employment and hours worked in industry, by area, of the Bureau of Labor Statistics. Both are broad indicators of trends in activity, both are comprehensive and rapidly available. The employment data are tied annually to the solid benchmarks provided by Unemployment Compensation and other similar data. The revised Federal Reserve Board index, in the absence of complete Census data, is tied to the latest available sources.

Then there are the data on sales of various types of retail outlets—far less satisfactory because of changes in channels of distribution; the reports on inventories and on orders, not adequate in coverage, not sufficiently detailed, and slow in issuance; the price indexes, catching the flow of goods in another way—fast and comprehensive, but classified, of course, primarily by product. There are the broad-scale aggregative measures summing up flows of activity in what is sometimes called economic accounting—the Gross National Product, already referred to—a useful, but not a sharp instrument, still containing a good many estimates; the monetary balance sheet of the Federal Reserve System, excellent and tight; the Federal Reserve's survey of consumers' intentions to buy, that helpful pioneer attempt to gauge the ultimate United States market. All of these are exceedingly valuable. They indicate turns and they test the pressures, each in its particular area. However, their interpretation, especially for forecasting, requires the greatest skill, because they are not integrated.

In part, this difficulty arises because these reports usually relate to a different set of firms or establishments, are collected on a different sampling basis, are available at different time intervals, and are assembled

into groups according to a different system of classification. Thus, statisticians and economists spend a great deal of time trying to piece together an industrial or product or processing picture out of a series of functional reports, except in rare instances where trade associations or specialized groups have organized available information in this fashion.

We can do better with existing data than we have if *analysis*, not reporting, is properly focused along industry lines, as apparently is now planned by the Department of Commerce. But in the long run, any great improvement in results will probably also require quite thorough revision of the Standard Industrial Classification. For example, statistics on imports and exports are not regularly tabulated on the basis of the SIC, and thus it is extraordinarily difficult to relate incoming and outgoing goods to figures on U.S. production. A review of the SIC is today in progress, but I do not know how far it has probed into some of the more basic problems. Beyond classification problems, of course, integration will also require more of the patient work of the Office of Statistical Standards to bring various scattered reports in line.

I believe that the solution to better integration of industrial statistics does not lie in a centralized reporting system, where all of the reports from any industry, whether they are on production, employment, inventories, or sales, would presumably come on one questionnaire, to one central agency. We have considered and discarded this proposal long ago. The comprehensive functional statistics coming today from different agencies are needed, because they are useful to answer particular questions of great importance. Many of them are related to administrative functions, from which they are virtually inseparable. There is nothing to be gained by tearing down what we have. We should build upon it and supplement it, not destroy it. If we are agreed that the absence of integration of economic statistics is hampering analysis of current economic activity, then I believe we should take direct steps to fill that gap.

We might consider setting up a new, integrated system of current economic intelligence based upon monthly reports from a comparatively small sample of companies. It would be designed to be a bellwether, to call the turns, to indicate any danger spots or points of notable expansion. It would not be designed to be complete or comprehensive, but to be indicative of points at which more detailed analyses, through existing statistical institutions, would be in order.

This idea is by no means new or original. It was suggested some years ago by a President of this Association that a sample of a few hundred representative companies, in a wide variety of industries and operations, might provide such a system of economic intelligence. These reports might include not merely production and sales of selected leading products, but also data on man-hours worked, on inventories of principal materials and of finished goods, backlogs of existing orders, new orders, and a group of financial items relating to liquid assets, bank loans, new capital commitments, and other data having a bearing upon the position and future activity of the company. It has been suggested that these data be reported by companies rather than by establishments, because the growing diversification of products under one corporate management makes it exceedingly difficult to operate rapidly along conventional establishment and classification lines, nor is it necessary for this purpose.

These statistical reports might be accompanied by additional comments on or descriptions of factors affecting the volume of activity, or the company's plans for the future—for example, comments on any shortages of materials, on slackening or increase of sales in particular territories, any impending changes in the price structure; the influence of external factors—weather, transportation tie-ups, industrial disputes, etc. One wonders whether official Washington has not too long neglected such a systematic give-and-take of information with business as a basis for interpreting the voluminous sets of statistics which it now receives.

The collection of these reports must clearly be centered in an established agency, where rules of confidentiality are always respected, and where there is great experience in the handling and interpretation of current economic reports.

If such a unified system of current economic intelligence were to be organized, it could only be done after the questions to be answered were very carefully defined and sharply pointed toward specific needs. It is exceedingly important that we know *what* we are trying to answer, *when*, and *why*. For a long time, no one group has thought through on behalf of the Federal Government the general economic questions which need to be answered, and the time table upon which the answers are required. The Council of Economic Advisers is responsible for over-all analysis of the economy of the United States, and it is to the Council, together with the Joint Committee on the Economic Report, that I believe we must look for leadership in formulating any new system of economic reports. This planning is not a function which can be performed by statisticians, *per se*. Left to our own devices, we might, after the manner of statisticians, ask all of the questions which occur to us, and use a shot-gun when a rifle is needed. In recent months, there have been indications of concern on the part of the Council both with new statistical tools and greater timeliness and effectiveness of existing statistics, and it has taken active steps to speed up the issuance of important economic indicators.

In summary, the problem of integration of economic

statistics is not primarily organizational; it is one of content. We need the valuable economic statistics issued by the Federal agencies today. To improve existing industrial statistics, we need solid Census benchmarks, taken more frequently; a thorough-going review of the Standard Industrial Classification; and a long-range job of analytical integration along industrial lines. And, as one means of integrating industrial statistics—so that we may judge the economic climate more effectively and take account of the variety of changing forces—I suggest a new fast system of current reports from representative companies.

PROBLEMS OF CO-ORDINATION IN THE CANADIAN STATISTICAL SYSTEM

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Historical Background

As many of you are aware Canada has a centralized statistical system though this has not always been the case. Centralization dates from 1918 when the Bureau of Statistics was established. Prior to that time statistics were, for the most part, decentralized in various government departments, though in 1905 a permanent Census and Statistics Office had been set up in the Department of Agriculture. This was a landmark in our statistical development because it reflected the fact that a body of opinion was being created in the country in favour of co-ordinated statistics and constituted the first step toward the establishment of the present organization. However, the general situation still left much to be desired and in 1912 Parliament set up a departmental Commission to study it. In its report the Commission stated:

"Though many of the statistical reports issued by various departments and branches are of undoubted excellence and value, there is apparent in the body of Canadian statistics, considered as a whole, a lack of coherence and common purpose. This is traceable to imperfect appreciation in the past of the fact that the statistics of the country, whether the product of one agency or several agencies, should constitute a single harmonious system, with all divisions in due correlation. Under the British North America Act, 1867, the Dominion is given specific authority to deal with 'statistics', and while this must not be regarded as precluding statistical activity on the part of local governments it does apparently imply that statistics are a matter of national concern and may therefore properly come under the general co-ordinating authority of the Federal Government. No such viewpoint or function, however, has in the past been assumed by the Dominion. On the contrary, each department or branch, charged either directly or indirectly with statistical investigation, has concerned itself primarily with the immediate purpose in view. This is, from the usual standpoint, quite as it should be; a department is not to be expected to regard points of view beyond the scope of the administration assigned to it. Nevertheless, the effect statistically has been to inculcate routine and the neglect of opportunities for furnishing wider information and service.

"While this detachment has characterized the departments of the Dominion Government, still more has it been evident as between the several provinces and the Dominion, and between province and province, notwithstanding that the national importance of many of the functions of the provincial governments under Confederation calls urgently for statistical uniformity and homogeneity. This general condition we would consider to be the fundamental defect which must be met and overcome in the existing situation." Some of the unfortunate results were noted in the report and included:

1. The scope of Canadian statistics had been restricted.
2. There was duplication and therefore waste of effort.
3. Statistics were unequal in quality and value because of the varying extent to which statistical methods had been developed in different jurisdictions.

As a result of recommendations made by the Commission, a Statistics Act was approved by Parliament in 1918 which provided for the establishment of the Dominion Bureau of Statistics and among other duties prescribed that it should: "organize a general scheme of co-ordinated social and economic statistics pertaining

to the whole of Canada and to each of the provinces thereof."

Many problems of co-ordination confronted the new Bureau.

Co-ordination with Administrative Departments of the Dominion Government

First there was co-ordination with the different departments of the Dominion Government.

The statistical work done previously in the various departments was transferred to the Bureau. In some cases this meant that the departments no longer collected the raw materials for subsequent processing (for example, transportation statistics, consumer prices, wholesale prices, employment, industrial census, and so on). In other cases the raw materials were the product of departmental administration. A good example is trade statistics the raw materials for which are collected as a by-product of departmental administration. Entries and supporting documents are sent to the Bureau for compilation. Here there have been problems of co-ordination. The information collected by the Customs Branch may be adequate for customs purposes but deficient for the broader statistical needs of a general integrated system of statistics.

Over the years since the establishment of the Bureau, the task of making the records collected or produced as an integral part of departmental administration fit into the plan for a co-ordinated system has occupied a prominent place in our activities. For example, in connection with the balance of payments, World War II presented an opportunity to make improvements in trade and tourist statistics.

Important defects, from the purely statistical point of view, in the administrative records of trade and tourists were known to exist. Recommendations made by an interdepartmental committee appointed to study the matter were approved. Amendments to customs forms, a complete reorganization of the methods of recording tourist information, and the transfer of the compilation from customs ports to the Bureau brought about a major improvement in the adequacy of the data for statistical purposes.

During World War II Canada created the Unemployment Insurance Commission thereby inaugurating unemployment insurance for a large part of the labour force. Provision was made in the Act for the collection of statistics which were to be compiled in the Bureau of Statistics. It was pointed out by the latter at the time that the records arising from the administration of the Act would have wider implications than those concerned with actuarial soundness or effective administration; that they should be collected and organized in such a manner as to be an effective tool to assist in analyzing the scope and character of employment and unemployment. A series of records and

tabulations was agreed to. Thus from the outset they were made to fit into the Bureau objective of an integrated and co-ordinated system of statistics adequate for the country's needs. Since then further improvements in the administrative records gathered have been made for the Bureau's expanding statistical needs.

This then is one type of co-ordination. The co-operation of government departments and agencies had to be obtained to secure administrative records and augment them where necessary to make them adequate to fit into the general overall statistical scheme.

This sort of co-ordination cannot be achieved once and for all time. Statistical needs expand and develop and we shall have to seek additional changes in administrative records of Dominion departments. At the present time we are having discussions with the Customs Branch of the Department of National Revenue for some important changes.

Co-ordination with the Provinces

A second very important co-ordination task which we must perform is in the field of Dominion-provincial relations.

Canada, of course, is a federal state. Its system of government includes a central governing body at Ottawa, ten component provincial governments and many municipal corporations. The British North America Act divides the field of legislative and executive power between national and provincial authorities. Generally speaking, all matters of national concern are under the jurisdiction of the Federal Government which is authorized to make laws for the peace, order, and good government of the country. Matters of local concern are dealt with by the provincial legislatures, including such items as education, property and civil rights, the administration of justice, municipal institutions, provincial prisons and reformatories, hospitals and welfare institutions, and administration of public lands. The powers of municipal corporations, exercised through elected councils, are delegated to them by the provinces and thus are varied in extent.

The Canadian Statistics Act accordingly gives the Bureau of Statistics right of access to all provincial, municipal, and public records. Further, it directs the Bureau to enter into statistical arrangements with the provinces for the delegation of powers, interchange of data, extension of franking privileges, and co-operative purposes generally.

Under this legislation, numerous arrangements involving both Dominion and provincial departments in specific subjects were in due course placed in operation, the object being to create the most efficient organization for the collection, compilation, and publication of statistical data and the pooling of available information.

On the whole the relationships established between the Dominion Bureau of Statistics and the provinces

are harmonious. The co-ordinating function of the Bureau is recognized to be an essential one because of the realization that comparability of definitions, uniform methods of collection, compilation, and presentation, and the avoidance of duplication are mutually advantageous.

Obviously, since certain fields of activity are under provincial jurisdiction, the provinces have administrative records which are the raw materials for statistics. In some fields such as agriculture and health and welfare there are both federal and provincial departments. In such cases the Bureau has to establish co-ordination of effort which will meet the needs of all. In practice, arrangements for attaining the desired objectives have been arrived at by successive Dominion-Provincial Conferences. In some cases these have led to formal written agreements; in others to satisfactory informal working arrangements. The methods used to achieve co-ordination with the provinces may be illustrated best by describing some of the actual working procedures at present in effect.

Vital Statistics. Concerning vital statistics the first Annual Report of the Dominion Statistician in 1918 had this to say:

"Vital statistics, notwithstanding their importance as the basis of public health and of much of the security and moral tone of social life, have never been satisfactorily organized for the whole of Canada. They are under provincial jurisdiction (as pertaining to civil rights); but in two of the provinces they have virtually never been brought into existence whilst in the others legislation and administrative methods have differed in the widest way. (For example, the statistical year is not uniform, the International Classification of Deaths is not universally followed, each province has its own standard of administration, and each province its own methods of compiling and presenting results.) Interprovincial comparisons of data or their combination into Dominion totals have accordingly heretofore been impossible."

Following the establishment of the Bureau, two Dominion-Provincial Conferences on Vital Statistics were held in 1918 which resulted in the adoption of a "Model Vital Statistics Act" as a basis for provincial vital statistics legislation. This included provision for compulsory registration. Standard registration forms were to be supplied by the Dominion Bureau of Statistics and copies of completed forms were to be forwarded to the Bureau for compilation of national statistics and the main tabulations required by the provinces, thus ensuring uniformity.

Further conferences were held in 1943, 1944 and 1947. As a result of the 1944 Conference the agreements with the provinces were revised and brought up to date and provision made for the establishment of a Vital Statistics Council with representation from the pro-

vincial vital statistics offices, the Bureau, and other interested federal officials. This Council has met annually since 1945. Its deliberations ensure uniformity of practice throughout Canada. Under the system which has now been evolved the original registration forms filed in the provincial vital statistics offices are microfilmed and forwarded to DBS for processing. The latter reproduces a copy of the microfilm for use in direct coding, indexing, and tabulation, using special microfilm reader equipment, and returns the original negative copy to the province.

Agriculture. The Bureau's work in the field of statistics of agriculture includes the taking of the decennial census for the Dominion as a whole, the quinquennial census of three western provinces, and the current statistics of agriculture which are the responsibility of our Agriculture Division. As to decennial and quinquennial censuses, the questionnaires are discussed with the provinces before final decisions are made as to their content.

For current statistics the Agriculture Division maintains close co-operation with the provinces as well as with Dominion Government departments and agencies such as the Board of Grain Commissioners, the Wheat Board, the Provincial Milk Boards, and similar organizations.

No formal agreements exist with the provinces in this field but a high degree of co-operation on a partnership basis has been developed over the years. Motivation for this co-ordinated effort comes chiefly from a mutual desire to avoid duplication in effort and to provide timely statistics as economically as possible. Beside much liaison in the field, Dominion-Provincial Conferences are held annually.

Arrangements with the provinces include agreements on the division of work, help in obtaining new correspondents, the promotion of good public relations with the farming community which has to supply the primary data, and agreement on schedules, and methods of editing, compiling, and estimating.

The actual division of work betweeen the provinces and the Bureau varies a great deal and depends largely on the resources available within the particular province for undertaking a share. In general, the Bureau provides the questionnaires and mails them with provision of post-free envelopes to the provinces with which agreements have been made for their tabulation. In some cases the forms come back to the Bureau which tabulates them. In all cases where work is done in the provinces there is co-ordination of effort so that the results will be uniform and comparable.

Financial Statistics of Provincial and Municipal Governments. In this field our task is to produce public finance statistics which are comparable at all levels of government—Dominion, Provincial, and Municipal. The public accounts of these governing

bodies are not presented on a uniform and comparable basis; in fact there is considerable variation. Hence the information furnished in Public Accounts and other official reports must be recast for statistical presentation and comparative analyses.

Numerous Dominion-Provincial Conferences and Committees have developed reporting schedules which are completed by the provinces and which result in a statistical presentation of provincial public finance on a uniform and comparable basis for Canada and its provinces. A major project now being considered by the annual conferences is the standardization of the presentation of the Provincial Public Accounts themselves. There has been a similar development in the even more complicated field of municipal finance statistics.

Education Statistics. Education in Canada also is under the jurisdiction of the provinces. Here, too, Dominion-Provincial Conferences supplemented by much field work have been the medium through which a system of co-ordinated statistics has been developed.

In the case of both public finance and education statistics co-ordinated effort has been facilitated by the preparation and distribution of manuals such as the manual on "Teacher-Pupil Statistics," and on financial statistics of educational activities. For public finance statistics manuals have been issued on "Municipal Accounting Terminology" and also a "Manual of Instruction—Balance Sheets, Revenues and Expenditures, and other Accounting Statements of Municipal Corporations".

Industrial Statistics. The means of achieving co-ordination in this field vary from industry to industry, particularly in the primary industries.

For mining statistics the Bureau has a co-operative arrangement with all provinces for the collection of annual statistics and with certain provinces for the collection of monthly statistics. Agreement is reached with the provinces concerning the questions to be asked and the needs of federal officials are taken into account. All forms are supplied by the Bureau, and all carry a notation to indicate that the reports are for the joint use of the Bureau and the provincial department concerned. Two provinces receive the completed returns, edit them and send them to the Bureau for compilation. For other provinces the return is made direct to the Bureau.

In forestry one province assumes the task of editing schedules before they come to the Bureau. Here again there is agreement with the provinces concerning the questionnaire and the needs of other federal officials are met.

Co-ordination with other Suppliers and Users of Statistical Data

Then there is the very large field in which we collect all the raw materials ourselves and process them. This includes considerable sections of all the fields described above and, in addition, decennial census, industrial census, census of distribution, labour and prices (not including Unemployment Insurance Commission and employment offices from which we receive the raw materials), general assignments which include construction and construction forecasts, balance of payments including tourist statistics but excluding the raw materials for trade, special surveys including the monthly survey of the labour force.

For secondary industries, i.e., all manufacturing industries, information is secured directly by the Bureau. Three provinces are interested in returns made by firms located in their territory. A duplicate schedule is furnished to these firms which they can send to the province concerned. In the competitive field of manufacturing the utmost care must be exercised to observe the rule of secrecy in regard to individual returns. The supplying to a Provincial Government of a copy of a questionnaire completed for the Bureau, in our opinion, is best left to an understanding between the province and the firm itself.

What are the problems of co-ordination in this large and important field of statistics of manufactures?

Since it is a field occupied almost solely by the Dominion Bureau of Statistics, the problem is one concerning the Bureau itself, the users of the statistics, and those who supply the basic data. As a matter of fact suppliers and users are often the same. True, with the increasing industrialization of the Canadian economy, there has been an increasing interest in manufacturing statistics, and one province has initiated supplementary questionnaires for its provincial activities. Last year we commenced a new series of Dominion-Provincial conferences—one on economic statistics to avoid duplication of effort and to ensure co-ordination and integration and the most profitable and economical utilization of joint resources.

In the field of industrial statistics the principal problem of co-ordination is one of securing adequate data to meet all needs. Frequently business firms give willing co-operation in supplying information which they can see is of direct benefit to themselves. When questions are included in the form asking for information which does not seem to be of use in helping them with their own immediate problems, there are some protests. Perhaps the question yields information needed for our national accounts which constitute a key statistical series for policy-making not only for governments but often used by larger business concerns. The national accounts then are certainly of indirect benefit to business. This kind of co-ordination requires an education of business concerning the use and value of the statistics derived from the questionnaires they fill in.

The other aspect of co-ordination with industry is meeting its needs for statistics. So far as this is concerned we must maintain close liaison with important individual users, with numerous trade associations, with more comprehensive organizations such as the Canadian Manufacturers' Association, Boards of Trade, Chambers of Commerce, and so on. There has been an occasional suggestion that we should set up a general advisory committee of business men to discuss the industrial census questions both from the point of view of completing schedules and the statistical needs of business. Our view has been that no single committee could speak for all the numerous types of industry with which we are concerned. It has been found that our most fruitful source of advice and support is from trade associations representing a specific type of industry. We have also most helpful associations with many of the leading business firms of Canada. However, it is not good enough to leave the initiative to business. It is necessary to seize every opportunity to discuss statistical needs and problems with them from our point of view and theirs.

In the field of distribution the same is true. We have close contacts with such organizations as the Retail Federation, and the larger distributors such as chains and department stores.

Co-ordination within the Bureau

There is still another phase of co-ordination of great importance. That is co-ordination within the Bureau itself. The fact that we are a centralized organization does not of itself ensure co-ordinated effort. Perhaps I might venture the opinion that it is somewhat easier to achieve this type of co-ordination in a centralized statistical organization. The Bureau has 14 divisions each in charge of a director. Within the divisions there are sections each under a chief. So there is need for co-ordination both within and between divisions. Centralization necessarily gives rise to a large administrative unit and it could happen that a "sectionalized" mentality would develop resulting in a serious lack of co-ordination. However, it would be an extraordinary weakness on the part of a centralized organization if this were so. Co-ordination should be made easier because of the unity of command, and the fact that it has to be carried out by people working under the same roof, who know each other personally, are accustomed to the same working procedures, are part of the same organization and, although working in specialized fields, are acquainted with the general objectives of the Bureau and know something about what the other divisions and sections are doing. Nevertheless co-ordination cannot be taken for granted. It must be stressed continuously as a cardinal principle of Bureau operations so that directors and chiefs will be on the alert to guard against failures. There are a number of ways by which we try to ensure internal co-ordination of effort.

We have an Advisory Board of Publications within the Bureau which keeps publications continually under review. Its purpose is to see that all are essential, that they contain no superfluous material, and that they are up to standard in regard to presentation and style. This obviously is one means of detecting any duplication of effort on the part of divisions.

In certain statistical fields information may be collected in more than one division. Take labour statistics for example. The Labour and Prices Division collects monthly statistics on employment and payrolls, the Industrial Census includes annual data, our Special Surveys Division collects monthly data on the labour force, the Public Finance Division collects information on employment and payrolls of Provincial Governments. This field has been under surveillance by an Interdivision Committee to see that there is no duplication of effort. As a rule each of these series is for a special purpose. There is a problem of integration here rather than co-ordination. Different series on employment and payrolls may confuse the public so a part of our planning is to make it clear what the purpose of each is and the limitation to its use. But there are opportunities for duplication as, for example, in the employment and payroll series in the Labour and Prices Division and in the Public Finance Division. This is avoided by the work of the Interdivision Committee.

An increasingly important aid to co-ordination comes to us through the work of the Statistical Commission and Statistical Office of the United Nations. The standard classifications which have been developed are aimed at bringing about statistical comparability as between nations but first this must be achieved within a country. The Standard Industrial Classification or classification of all economic activities is pertinent to the work of several of our divisions and we see that it is used in all of them.

One fruitful means of achieving co-ordination within the Bureau is through the work of our Research and Development Division which produces our national accounts and national income estimates. This Division was set up about the time when World War II ended, to reorganize and develop these accounts. As you know, reliable national accounts are possible only when a comprehensive and highly organized statistical system has been developed since they draw from a great variety of statistical sources. In developing these accounts deficiencies in the work of the divisions became apparent. There were gaps to be filled and qualitative improvements were necessary. Here lack of co-ordination becomes apparent and can be remedied. Incidentally, centralization facilitated these improvements since the various fields were under one control. Orders for change could be given directly and did not require winning the co-operation of agencies controlled elsewhere.

Conclusion

What I have said should give you a general idea of the problems which we have had to achieve co-ordination of effort and to secure an integrated and co-ordinated system of statistics adequate for our needs. I do not want to leave you with the impression that all problems have been solved and that we are operating in a blissful state of perfection. The problem of co-ordination is a continuing problem. Even in the federal field where government policy prescribes the centralization of statistical activities watchfulness must be the keynote. New departments, agencies, boards, and so on come into being with new personnel who have to be indoctrinated into the atmosphere of centralization. Bright and ambitious young men bitten by the virus of empire building require statistics and would like to launch out on their own account. We must tactfully but firmly dissuade them.

The main problem with our ten provinces is to meet their growing needs and also to have their administrative records oriented to meet the Bureau's needs. Three have Provincial Statisticians and this fact facilitates efforts toward co-ordination. The most fruitful media are our Dominion-Provincial Conferences and committees supplemented by numerous personal contacts in the field.

But a very large proportion of the Bureau's work is dependent upon our gathering materials directly and not from administrative records of government departments at different levels. Here there must be continuous liaison with the users of our statistics. It would be fatal to try and operate in an ivory tower. Much more than in a decentralized system is the necessity for that type of co-ordination. There must be close liaison in many cases with those who supply our raw materials in the business world and there must be numerous checks for ensuing co-ordination within the Bureau itself. Eternal vigilance is the price of success.

COMMENTS

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The task of commenting upon Mrs. Wickens' and Mr. Marshall's papers is a difficult one because I do not find myself in any serious disagreement with their conclusions. Moreover, they are agreed about the importance of statistics, and it is well on occasion for statisticians to remind themselves that they have unusual responsibilities. Professor M. G. Kendall in his inaugural lecture in 1950 at the London School of Economics summarized the role of statistics as follows: "I therefore propose to speak, not about particular sets of statistics or particular statistical methods, but about the ideas and motives which lie behind them. I should like you, just for this one occasion perhaps, to see my subject as I see it myself, not as the pedestrian science of handling numerical data, not even as a comparatively new branch of scientific method, but as the matrix of quantitative knowledge of nearly every kind, as the principal instrument yet devised by man for bringing within his grasp the terrifying complexity of things and relations-between-things, and as a powerful illuminant of the process of rational thought itself."

The two papers approach the problem of an integrated system of statistical intelligence from quite different points of view. Mr. Marshall has correctly pointed out that even in a condition which might be described as "monolithic" the Dominion Bureau of Statistics still must solve many different problems of coordination although he told us also that there are many factors working in the Bureau to make coordination easier than it might be in a decentralized system. There are many intractable problems confronting the statistical authorities in arriving at a desirable balance among the elements of the Federal statistical programme, in establishing the role of Governmental statistical activities in relation to those of non-governmental agencies and in dealing with questions of confidentiality of returns and the public interest generally. They are problems equally for a centralized and for a decentralized system although methods of solution might differ as between the two systems. The end product of all the organizational arrangements and techniques is a system of statistics to serve the needs of the government and the general public alike with efficiently compiled and useful statistics. Mrs. Wickens, however, attaches particular importance to this aspect and to the need to review the content, timeliness and pertinence of the statistics collected. These are, in fact, the characteristics of a statistical system which are frequently taken for granted but experience has shown that these objectives are among the most difficult to achieve in practice.

21

Statistics must be purposive; they must relate to the solution of the particular problems confronting each stratum or level of society. The statistics may refer to the economic problems of an Indian village, to a modern industrial state, to a small group of countries organized to work toward certain agreed objectives or to a world wide association of states set up for stated purposes. Whatever the organizational frame in a geographic sense, good and useful statistics will require definitions, concepts, classifications, methods and procedures which are apposite to the problems under investigation and to the institutional arrangements existing in the particular frame. Moreover, and here the problem becomes rather more complicated, the statistical standards evolved may have to be such that the resulting statistics are truly additive from level to level if it is desired to deal with the subject under investigation at each level. This need frequently arises, the more so as countries or special groups of countries are seeking joint solutions to their common problems. Statistics of rice production in our Indian village, statistics of rice production in India, statistics of rice production in Southeast Asia and in the world must be based upon a standard definition and classification if they are to be of the maximum usefulness at each stage.

This kind of requirement—that is the need to have the necessary degree of comparability at the various stages at which the statistics are used—gives rise to particular difficulties if country to country comparisons are sought. Standardization of statistical definitions and concepts is difficult enough for a single country even where there is a dominant central statistical office; it is immeasurably more difficult in a country where statistical responsibilities are largely in the hands of state or provincial authorities or where each ministry or department tends to have its own statistical apparatus. Standardization on a world wide basis, however, involves not only the problems of each particular country but frequently those of sub-regional or regional groups of countries. In addition to the geographic element, which is analogous to a country where statistical responsibilities are decentralized to states or provinces, there is also decentralization as regards subject-matter fields. This is analogous, in turn, to a country where statistical responsibilities are divided among the ministries of agriculture, commerce, labor and so on. From the standpoint of international statistics, therefore, the frame is a very complicated one, composed of about 100 governments, some hundreds of ministries, and a considerable number of international and regional statistical organizations. While it would not be correct to multiply all these numbers together, the possible combination of these elements is capable of producing a very complicated design indeed.

Nevertheless, as events have proved, it is possible to go a considerable distance in the required amount of standardization of concepts, definitions and of all the other tools in the statistician's workshop. While the methods employed in any particular problem must naturally take account of the interests, needs and responsibilities of the congeries of governments and international agencies involved, they are very similar to many of those described by Mr. Marshall.

This is especially true of those methods of coordination and consultation which lead to the substantive integration of statistics. I find Mrs. Wickens' remarks upon the importance of integrating statistics subject-wise, with agreement at various levels on technical standards and methods, very descriptive of the way international agencies are approaching their problems.

Fortunately, the international agencies are not faced with very many problems of a parochial nature. Moreover, we are completely without mandatory authority, and this relieves us of making a lot of decisions which might distract us from the task of developing suitable statistical tools to use in the further integration of statistics.

COMMENTS

C. F. CARTER
Queen's University, Belfast, Northern Ireland

I should perhaps begin by declaring my interest in the subject. The National Institute of Economic and Social Research in London has recently sponsored an investigation into British economic statistics in their relation to the making of policy; and the report on that investigation, written by Mr. A. D. Roy and myself, will shortly be published.[1]

In the United Kingdom we have a decentralized statistical system to which there has been added, in

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[1] C. F. Carter and A. D. Roy. "British Economic Statistics," Cambridge University Press, 1954.

recent years, a measure of informal coordination exercised by the Central Statistical Office (C.S.O.). I use the word "informal" because the C.S.O. is endowed with none of the powers of enforcing uniform and satisfactory practices which various Acts have given to the Bureau of the Budget in the U.S.A. The C.S.O. has acted as a coordinator in bringing about such valuable reforms as the adoption of the Standard Industrial Classification and of a standard division of the country into regions. It is not a collecting agency, and it produces only those statistics which cut across the boundaries of departmental responsibility—such as the Index of Industrial Production and the National Product estimates. It has an important function in publishing the *Monthly Digest* and the *Annual Abstract* of statistics; but it has no monopoly of publishing Government statistics, and, though it provides technical descriptions (to an inadequate extent) it leaves to others the task of explaining the significance of its figures.

Now, as Americans will know, every British breast swells with pride at the sight of an informal and untidy arrangement which ought logically to collapse in chaos, but which mysteriously keeps on working. The C.S.O. is far from being ineffective; and its ability to get things done depends in part on a fact which would be unnoticed in a formal description of the machinery— namely that departmental statistical posts are increasingly filled by people with C.S.O. experience, who are used to working together. Nevertheless I think that our present system fails in two particulars.

The first is in its impact on the public. Many business men complain that they give information, sometimes on the same things, to several different Government departments, and that they receive little of value in return. There is substance in the complaint; the statistical services are organized for the convenience of Government, whereas their first thought should be for the convenience of the citizen.

The second is in its use of scarce resources of money and trained manpower. As long as statistical services appear in the votes of many departments, there is no effective means of suggesting that one is over-expanded and should yield resources to another which is hard pressed. Despite the great improvement of the last fifteen years, I believe that we are still suffering from an uneven development in the scope and competence of our statistical services. Furthermore, it must be difficult to make the best use of modern tabulating and electronic equipment, and of the personnel for field enquiries and sampling, under a system of departmental responsibility for collection.

In our book we have proposed some extra measures of coordination. But I now wonder whether the logic of the situation does not point towards a much greater degree of centralized collection and control. It appears to me that practically all statistics which are *not* a mere by-product of administration would be collected better, and with greater public convenience, by a single specialist department—if necessary acting as an agent for other departments. For those statistics which are thrown up in the course of administration, it seems to me that it would be an advantage to have another department expressing the public interest in designing questionnaires and administrative procedures so that they yield the best possible statistical product with the least expenditure of money and trouble. I see no reason why the central agency should not have statutory powers of enforcing a respect for that interest. For the whole statistical field, it would help to have a central body with power to ensure a uniform development. And I think all this could, with care, be achieved without introducing that fatal division between the man who knows what the figures mean and the man who uses them.

Originally I would have said that a fully centralised system was only possible in countries (like the Republic of Ireland) where one man can keep an eye on the whole statistical machine. But I doubt whether the argument for decentralization in a large and complex economy is really valid. It may however be true that the disorganization caused by radical reforms would outweigh the advantage of the reforms; it is on these lines that the advocates of "muddling through" must justify themselves against the believers in "tidying up".

AMERICAN STATISTICAL ASSOCIATION

Western Regional Meeting
University of California, Berkeley
December 27-31, 1954

MONDAY, DECEMBER 27

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9 a.–12 m.
Room 145,
Dwinelle Hall

STATISTICS IN BIOLOGY AND GENETICS

Third Berkeley Symposium on Mathematical Statistics and Probability; AAAS—Section A; American Statistical Association; Institute of Mathematical Statistics

Chairman: Roy E. Clausen, University of California

Papers: STRUGGLE FOR EXISTENCE, Thomas Park, University of Chicago, Jerzy Neyman and Elizabeth L. Scott, University of California

SOME GENETIC PROBLEMS IN CONTROLLED POPULATIONS, Everett Dempster, University of California

SOME GENETIC PROBLEMS IN NATURAL POPULATIONS, James F. Crow and Motoo Kimura, University of Wisconsin

9:30 a.–12 m.

Room 111,
Dwinelle Hall

APPLICATIONS OF POISSON AND EXPONENTIAL DISTRIBUTIONS TO PHYSICS AND IN-DUSTRY

American Statistical Association-Committee on Statistics in the Physical Sciences; Institute of Mathematical Statistics

Chairman: G. E. Albert, University of Tennessee

Papers: INFERENCE PROBLEMS IN POISSON PROCESSES, Allan Birnbaum, Columbia University

SURVEY OF SOME NEW TECHNIQUES IN LIFE TESTING WHEN THE UNDER-LYING DISTRIBUTION IS EXPONENTIAL, Benjamin Epstein, Wayne University

ESTIMATES OF BOUNDED RELATIVE ERROR FOR THE POISSON AND OTHER PARAMETERS, Meyer A. Girshick, Stanford University

ON ESTIMATING THE MEAN LIFE OF A RADIOACTIVE SOURCE, Richard F. Link, Sandia Corporation

2 p.–4 p.
Room 127,
Dwinelle Hall

REGIONAL UNEMPLOYMENT ESTIMATES

American Statistical Association—Business & Economic Statistics Section; Social Science Research Council—Pacific Coast Committee on Social Statistics

Chairman: George Roche, California Department of Employment

Papers: THE STATE OF UNEMPLOYMENT ESTIMATING IN THE PACIFIC NORTHWEST, Philip W. Cartwright, Institute of Labor Economics, University of Washington

THE STATE OF UNEMPLOYMENT ESTIMATING IN THE PACIFIC SOUTHWEST, Laurence de Rycke and Robert E. Dicerson, Occidental College

METHODOLOGICAL PROBLEMS ENTAILED IN PREPARING REGIONAL UN-EMPLOYMENT ESTIMATES, Wilbur Parker, California Department of Employment

1:30 p.–3:30 p.
Room 145,
Dwinelle Hall

STATISTICAL MECHANICS

Third Berkeley Symposium on Mathematical Statistics and Probability; AAAS-Sections A and B; American Statistical Association; Institute of Mathematical Statistics

Chairman: Mina Rees, Hunter College

Papers: HOPF-WIENER EQUATION SYSTEMS AND MATRIX FACTORIZATION, Norbert Wiener, Massachusetts Institute of Technology

FOUNDATION OF KINETIC THEORY OF GASES, Mark Kac, Cornell University

EFFECT OF DIMENSIONALITY ON LONG RANGE ORDER IN CRYSTALS, Elliott Montroll, Office of Naval Research

9:30 a–12 m.
Room 127,
Dwinelle Hall

REGIONAL INDEXES OF BUSINESS ACTIVITY

American Statistical Association—Business & Economic Statistics Section; Social Science Research Council—Pacific Coast Committee on Social Statistics

Chairman: William A. Spurr, Stanford University

Papers: AN INDEX OF INDUSTRIAL PRODUCTION FOR THE TWELFTH FEDERAL RESERVE DISTRICT, Harry Schwartz, Federal Reserve Bank of San Francisco

AN INDEX OF BUSINESS ACTIVITY FOR CALIFORNIA, George Hopiak, Wells Fargo Bank, and Francis Dresch, Stanford Research Institute

AN INDEX OF BUSINESS ACTIVITY FOR SOUTHERN CALIFORNIA, C. C. Jamison, Security-First National Bank of Los Angeles

9 a.–12 m.
Room 145,
Dwinelle Hall

STATISTICS IN MEDICINE AND PUBLIC HEALTH

Third Berkeley Symposium on Mathematical Statistics and Probability; AAAS—Section A; American Statistical Association; Institute of Mathematical Statistics

Chairman: Charles E. Smith, University of California

Papers: PROBLEMS OF CONTAGION, William F. Taylor, School of Aviation Medicine

STATISTICAL PROBLEMS IN MEDICAL DIAGNOSES, Chin L. Chiang and Jacob Yerushalmy, University of California

SOME STATISTICAL PROBLEMS ARISING FROM RETROSPECTIVE STUDIES, Jerome Cornfield, National Institutes of Health

Discussion: Albert T. Reid, Columbia University, and Ahmed E. Sarhan, University of North Carolina

9 a.–12 m.
Room B45,
Dwinelle Hall

RELIABILITY OF COMPLEX SYSTEMS

American Statistical Association-Committee on Statistics in the Physical Sciences

Chairman: R. Weller, U. S. Naval Air Missile Test Center, Point Mugu, California

Papers: PRINCIPLES OF RELIABILITY, M. R. Seldon, Chance Vought Aircraft

THEORY OF FAILURE, C. R. Gates, Jet Propulsion Laboratory

EFFECT OF VIBRATION-AGING ON CERTAIN TYPES OF RECEIVING TUBES, G. T. Ford, Sandia Corporation

EXPERIMENTAL EVALUATION OF COMPONENTS FOR USE IN COMPLEX SYSTEMS, L. W. Ball, Wyle Laboratories

AN APPROACH TO THE SYSTEMATIC ANALYSIS OF CIRCUIT OPERATIONS, R. O. Frantik, Sandia Corporation

ECONOMICALLY OPTIMUM ACCEPTANCE TESTS, J. V. Breakwell, North American Aviation

1:30 p.–3 p.
Room 145,
Dwinelle Hall

STATISTICS IN ASTRONOMY. THE SPATIAL DISTRIBUTION OF GALAXIES

Third Berkeley Symposium on Mathematical Statistics and Probability; AAAS—Sections A and D; American Statistical Association; Institute of Mathematical Statistics; Astronomical Society of the Pacific

Chairman: Joel Stebbins, Lick Observatory

Papers: STATISTICS OF CLUSTERS OF GALAXIES—DISTRIBUTION OF CENTERS, ANGULAR DIMENSIONS, STRUCTURE, LUMINOSITY FUNCTION OF MEMBER GALAXIES, Fritz Zwicky, Mount Wilson & Palomar Observatories

STATISTICS OF IMAGES OF GALAXIES WITH PARTICULAR REFERENCE TO CLUSTERING, Jerzy Neyman, Elizabeth L. Scott, University of California, and C. Donald Shane, Lick Observatory

GALAXIES, STATISTICS AND RELATIVITY, George C. McVittie, University of Illinois

Afternoon
Room 23,
Dwinelle Hall

REGIONAL ECONOMIC ANALYSIS

American Association for the Advancement of Science, Section K; American Statistical Association—Business & Economic Statistics Section; Social Science Research Council—Pacific Coast Committee on Social Statistics

Chairman: David A. Revzan, University of California

Papers: BASIS OF THE WORK OF THE WESTERN COMMITTEE ON REGIONAL ECONOMIC ANALYSIS, Dean E. T. Grether, University of California

THE BASES FOR SPATIAL INTERACTION: A GEOGRAPHICAL REVIEW OF LINKAGES, Edward L. Ullman, University of Washington

THE TRADE BALANCE POSITION OF THE TWELFTH FEDERAL RESERVE BANK DISTRICT, Harold Buma, Federal Reserve Bank of San Francisco

8:00 p.m.   **PRESIDENTIAL ADDRESS**

Wheeler   *American Association for the Advancement of Science*
Auditorium   A HALF-CENTURY OF QUANTUM PHYSICS, E. U. Condon, Corning Glass Works
9:00 p.m.   **Reception**
Stephens Union   *American Association for the Advancement of Science*
Club Rooms

WEDNESDAY, DECEMBER 29

10 a.–12 m.   **PROBABILITY AND INDUCTION**

Room 145,   *Third Berkeley Symposium on Mathematical Statistics and Probability; AAAS Sections A and L; American*
Dwinelle Hall   *Statistical Association; Institute of Mathematical Statistics*
                   Chairman: William R. Dennes, University of California
                   Papers: PROBLEMS OF VALUES IN RELATION TO INDUCTION, C. West Churchman, Case
                                       Institute of Technology
                                   THE MEASUREMENT OF UTILITY AND SUBJECTIVE PROBABILITY, Patrick
                                       C. Suppes, Stanford University
                                   TOWARD AN OBJECTIVISTIC THEORY OF PROBABILITY, Edward W. Barankin,
                                       University of California
                   Discussion: Joseph Berkson, Mayo Clinic

9:30 a.–12 m.   **PACIFIC COAST POPULATION TRENDS**

Room B45,   *American Association for the Advancement of Science—Section K; American Statistical Association; Social*
Dwinelle Hall   *Science Research Council—Pacific Coast Committee on Social Statistics*
                   Chairman: Calvin F. Schmid, University of Washington
                   Papers: RECENT POPULATION TRENDS WITH SPECIAL EMPHASIS ON THE PACIFIC
                                       COAST REGION, Conrad Taeuber, U. S. Bureau of the Census
                                   TRENDS IN URBANIZATION WITH SPECIAL EMPHASIS ON THE PACIFIC
                                       COAST REGION, Walter T. Martin, University of Oregon
                                   FUTURE TRENDS IN POPULATION IN THE PACIFIC COAST REGION, William
                                       A. Spurr, Stanford University

1:30 p.–4 p.   **STATISTICS IN ASTRONOMY: THE DISTRIBUTION OF STARS IN THE HERTZSPRUNG-
                   RUSSELL DIAGRAM**

Room 145,   *Third Berkeley Symposium on Mathematical Statistics and Probability; AAAS Sections A and D; American*
Dwinelle Hall   *Statistical Association; Institute of Mathematical Statistics; Astronomical Society of the Pacific*
                   Chairman: Otto Struve, University of California
                   Papers: THE H-R DIAGRAM, Bengt Stromgren, Yerkes Observatory
                                   THE SPECTRA AND OTHER PROPERTIES OF STARS LYING BELOW THE NOR-
                                       MAL MAIN SEQUENCE, Jesse L. Greenstein, California Institute of Technology
                                   EVIDENCE FOR SEQUENCES IN THE COLOR-LUMINOSITY RELATIONSHIP
                                       FOR THE M-DWARFS, Gerald E. Kron, Lick Observatory
                                   PHOTO-ELECTRIC STUDIES OF STELLAR MAGNITUDES AND COLORS, Harold
                                       Johnson, Lowell Observatory
                                   OBSERVED RELATIONSHIPS BETWEEN LUMINOSITY COLOR AND MASS FOR
                                       STARS IN THE SOLAR NEIGHBORHOOD, Olin Eggen, Lick Observatory

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THURSDAY, DECEMBER 30

9 a.–10 a.   **MATHEMATICAL STATISTICS**

Room 145,   *Third Berkeley Symposium on Mathematical Statistics and Probability; AAAS-Section A; American Statistical*
Dwinelle Hall   *Association; Institute of Mathematical Statistics*
                   Chairman: Wilfred J. Dixon, University of Oregon
                   Papers: ON THE CHARACTERIZATION OF POPULATIONS BY PROPERTIES OF SUIT-
                                       ABLE STATISTICS, Eugene Lukacs, Office of Naval Research
                                   SEQUENTIAL DESIGN, Samuel Karlin, California Institute of Technology and Stanford
                                       University

10 a.–12 m.	**STATISTICS IN INDUSTRIAL RESEARCH**

10 a.–12 m.
Room 145,
Dwinelle Hall

STATISTICS IN INDUSTRIAL RESEARCH

Third Berkeley Symposium on Mathematical Statistics and Probability; AAAS—Sections A and M; American Statistical Association; Institute of Mathematical Statistics

Chairman: Fred L. Hotes, University of California

Papers: RECENT DEVELOPMENTS IN SAMPLING INSPECTION, Albert H. Bowker, Stanford University

STATISTICAL PROBLEMS IN LIFE TESTING, Milton Sobel, Bell Telephone Laboratories

EFFICIENT EXPERIMENTAL DESIGN IN INDUSTRIAL RESEARCH, Cuthbert Daniel, New York City

1:30 p.–4 p.
Room 145,
Dwinelle Hall

STATISTICS IN PSYCHOLOGY

Third Berkeley Symposium on Mathematical Statistics and Probability; AAAS-Sections A, I, and Q; American Statistical Association; Institute of Mathematical Statistics

Chairman: Joy P. Guilford, University of Southern California

Papers: SOME STOCHASTIC MODELS FOR LEARNING THEORY, Frederick Mosteller, Harvard University

STATISTICAL METHODS IN PSYCHOMETRIC RESEARCH, Herbert Solomon, Columbia University

STATISTICAL INFERENCE IN FACTOR ANALYSIS, Theodore W. Anderson, Columbia University

Discussion: Charles O. Neidt, University of Nebraska

2 p.–4 p.

THE MEANING OF PROBABILITY TO THE ENGINEER, MATHEMATICIAN, AND PHYSICIST— PANEL

American Statistical Association-Committee on Statistics in the Physical Sciences; Institute of Mathematical Statistics

Panelists: H. Royden, Stanford University—*Chairman*

David Blackwell, Howard University

Wendell A. Horning, Ramo Wooldridge Corporation

E. T. Jaynes, Stanford University

Afternoon
Room B45,
Dwinelle Hall

THE SOCIAL STRUCTURE OF CITIES

American Association for the Advancement of Science, Section K; American Statistical Association; Social Science Research Council—Pacific Coast Committee on Social Statistics

Chairman: Leonard Broom, University of California

Papers: A COMPARATIVE STUDY OF AMERICAN CITIES: SOME METHODOLOGICAL PROBLEMS, Wendell Bell, Northwestern University

URBAN STRUCTURE AND PARTICIPATION, Morris Axelrod, University of Michigan

SOCIAL AREAS OF THE BAY REGION, Robert C. Tryon, University of California

SUICIDE AND URBAN STRUCTURE, Aubrey Wendling, University of Washington

6:00 p.m.
International
House

DINNER MEETING AND VICE-PRESIDENTIAL ADDRESS

American Association for the Advancement of Science, Section K

THE INTERNATIONAL CONSEQUENCES OF SCIENTIFIC RESEARCH, John B. Condliffe, University of California

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NOTE: Registration fee for this meeting is $2.50. The fee covers attendance at all sessions presented by the American Association for the Advancement of Science and the other participating organizations. Registration may be made in advance by writing to AAAS, 1515 Massachusetts Ave., N.W., Washington, D. C., or upon arrival at the University of California in the foyer of the gymnasium for men. The fee also includes a copy of the Program-Directory of all meetings.

Reservations for housing can be made by writing directly to AAAS Housing Bureau, ℅ Berkeley Convention Bureau, 2223 Fulton, Berkely, Calif. *Make your reservations early.*

Changes in session times and content may be made. Consult your final program for the correct information. The above program is *not* final.

THE TRAINING OF STATISTICIANS

GEORGE E. NICHOLSON, JR.

University of North Carolina

Since the fall term in 1946 members of the teaching faculties of the Department of Statistics in Chapel Hill and the Department of Experimental Statistics in Raleigh have been involved in a cooperative teaching program which has provided a unique opportunity to study the problem of teaching statistics to students who were candidates for a degree in statistics as distinguished from students who have an interest in the subject principally for its utility in certain special fields of knowledge. Due to the administrative organization of the Consolidated University of North Carolina, the Department of Statistics in Chapel Hill is mainly concerned with the theoretical aspects of statistics and has no direct connection with other departments in the University nor responsibility for teaching courses for any but its own students. In Raleigh the work of the Department of Experimental Statistics is less specific and includes teaching and consulting responsibilities to the rest of the College. Students who plan to specialize in theoretical statistics and minor in mathematics therefore register in the Department at Chapel Hill, while those who are principally interested in statistical methodology register in Raleigh and minor in a department in which statistics is applied. Students on each campus take courses on the other campus, i.e., students in Raleigh travel to Chapel Hill to take courses in Statistical Inference, Multivariate Analysis, etc., and students in Chapel Hill go to Raleigh for courses in Advanced Experimental Statistics, Design of Experiments and Sampling. However, evidence began to accumulate that students interested mainly in applications were beginning to exhibit lacunae in their knowledge of statistical theory while a complementary condition was manifesting itself in the theoretically inclined students. This led some of us to reexamine our definitions of what a degree in statistics should mean, and in 1951 a Curriculum Committee was organized on an Institute of Statistics basis, and made a preliminary report to an Institute staff meeting in December 1951.

The Committee agreed that the training of all candidates for degrees in statistics should be uniform up to a certain point. It was therefore their task to determine a minimum level of statistical theory and a minimum level of statistical analysis to be required of all degree candidates. It is perhaps worth noting that the name

statistical theory was used to describe what is sometimes called mathematical statistics and statistical analysis to describe applied, experimental or methodological statistics.

The Committee addressed itself strictly to the problem of training candidates for degrees in statistics. It was recommended that one degree in statistics be given by the departments with two options: (1) Statistical Theory, (2) Statistical Analysis. It was considered a fundamental premise that there be a common area of educational experience and competence between these two classes of students. The curriculum recommended was suggested to be that minimum common educational experience.

Two courses were developed to be taken simultaneously by all students during the first year of graduate work except under very special circumstances. One problem which arose almost at once was that of the mathematical requirements for the course in statistical theory. Since the course was designed for two classes of students it was necessary to spell out in detail the mathematical requirements by topic rather than by subject. This was necessary for several reasons. In the first place experience had proved that the amount of variation in courses called Advanced Calculus, Matrix Theory, Complex Variable, Function Theory, Calculus of Finite Differences, etc., was so considerable that neither the mathematical maturity nor the achievement of a student can be judged with any precision by a description of courses he may have had. Also, since we had to keep firmly in mind the needs of the students who were interested in the Statistical Analysis option, a course of Special Functions in Mathematics for Statisticians seemed to be in order. This course would make it possible for students to acquire the mathematical tools needed for the theory course while they were taking the course and would eliminate the need for them to take five or six courses in mathematics to obtain the minimum of topics needed. This course thrust itself upon the attention of the Committee for these reasons but is ancillary to the main purpose. A student electing the theoretical option would take the standard courses in mathematics even if the special course were available since the standard courses would be needed for advanced theoretical courses.

The courses in statistics are intended to be basic for

all students before they begin specialized studies in the field. They are intended to provide most of the tools used by practicing statisticians together with a knowledge of the scope of their utility and limitations.

In teaching the Introduction to Statistical Theory courses, the main emphasis is to give the student a thorough grasp of statistical concepts, philosophy and methodology. The statements made and proofs as far as they are given are rigorous, but the derivations for certain topics are supposed to be left out. It was decided that this basic course could be given without too much advanced mathematics but at the same time without any sacrifice of rigour or precision in concepts and use of methods. Any gaps left in the proofs should be covered by the students during further work in the second year, at least for those students who specialize in Theoretical Statistics.

The Statistical Analysis course is designed to give the student facility in numerical computations, a feel for handling live data, and a build up of the physical counterpart of the abstract notions that he studies in theory.

It is recommended that at the end of the first year there be held a written and laboratory examination (three written papers of three hours each and three practical papers of four hours each covering the topics in Statistical Theory and Analysis.) Even if some students are, for special reasons exempted from taking any course, no one under any circumstances should be exempted from taking the examination. One object of this examination is to determine which students should be encouraged to proceed and also to determine the direction of specialization recommended. The results will also be helpful in selecting proper candidates for award of fellowships or stipends.

In considering the adoption of the curriculum proposed by the committee the following pros and cons were considered. A closely integrated series of courses such as are proposed should enable a student to cover more topics in a given time period than was formerly possible. Similar statistical ideas are presented simultaneously in the theoretical and analysis sequences from complementary points of view. At a period in the beginning graduate student's career when he is first being introduced to statistics every effort should be made to impress him with the unity of statistical approaches to problems by reinforcing the ideas by repetition from intuitive, empirical, and mathematical lines of attack. By having a sequence taught for a full year by the same instructor a smooth consistent approach is maintained and a concentrated effort to sustain a coordinated program of study is facilitated when two or three principals are concerned with the basic instruction of the graduate students. The integrated character of the sequences should also eliminate the necessity which had been pointed out, that of having to teach piecemeal certain rather elementary topics in mathematics and statistics in several advanced courses because these topics had been omitted earlier.

One of the disadvantages of the proposed curriculum is that it lacks a certain flexibility. Since it is expected that the sequences are taken concurrently it is probable that a student who is unable to take a normal graduate load will be handicapped. If a student is only able to take two of the sequences he will be losing much of the advantage of the integration.

Consider an example. A candidate for a degree in statistics, who is primarily interested in specializing in statistical analysis and who can take only two of the sequences, will probably require the mathematics sequence and the analysis sequence. He could then take the theory sequence in his second year. The difficulty with this plan is that the analysis sequence dispenses with most of the attempts to justify procedures by elementary proofs which are included in a conventional analysis sequence. Under these circumstances, it is recommended that such students take the conventional analysis sequence in lieu of the proposed analysis sequence.

The benefits to students and to the development of a model training program in statistics were felt by the members of the committee to be considerable if this curriculum, together with the spirit underlying its development, was adopted. A statistician would be, in our definition, one who has a minimum training and professional ability as evidenced by successful passing of the set of professional examinations administered by an Examination Committee of the Institute of Statistics.

This program has been put into operation during the year 1953–54. The theory course is being taught by R. C. Bose on both campuses on the basis of four lecture hours per week and one two hour lab for a total of five semester hours credit. The addition of a lab to the theory course is an innovation which seems to be eminently satisfactory. The analysis course is taught on both campuses by R. L. Anderson on the basis of two hours lecture and four hours lab for a total of four semester hours credit.

On the basis of experience already gained I can speak for the results in Chapel Hill. The Committee recommended that the two statistics courses be taken simultaneously. This seems necessary and a student may be expected to have more difficulty with a course taken singly than otherwise since although numerous topics are covered in one year, the repetition and emphasis from different points of view in the two courses reinforces and stimulates the student. The students who are having most difficulty in each course are those who are not taking both. This impression is based upon too few cases to emerge as a real finding but the indications are very strong so far.

By the end of the first semester it begins to be clear

in individual cases how students should be advised. A student is able to form well informed notions of the option he should take in his advanced work. In Chapel Hill students enter the Department with a prerequisite of Advanced Calculus. Their first semester schedule, with few exceptions, is Statistical Theory I, Statistical Analysis I, Complex Variables and Matrix Theory. The second semester schedule is Statistical Theory II, Statistical Analysis II and either Intermediate Probability and Special Functions (or Real Variables), or Sampling and Special Functions (or a course in a field of application.) The decision as to which of the two options—theory or analysis—is based upon the student's interest and aptitude as influenced and revealed by the first semester.

The curriculum is still in an experimental form and the results of the first year's experiment will be studied with care. Records are being kept of students' performances together with background information such as previous training, Graduate Record Examination Scores and other information. The Department of Biostatistics and the Department of Sociology have indicated interest in this experiment in Chapel Hill and students majoring in these departments who wish a minor in statistics are entering the first year basic sequence. The experience of these students will be of interest.

The outlines of the two statistics courses are attached. The topics in mathematics are also listed in such a way that they could be covered in a one year's sequence of three semester hours. The prerequisite of such a course would be integral calculus.

Topics Covered in Statistical

Week	Theory	Analysis
1	Permutations and combinations (with illustrative examples useful for the development of probability theory). Logical foundations and axiomatic treatment of probability. Illustrations of discrete and continuous cases. Concept of a random variable.	History and uses of statistics. Definitions. History. Uses in various fields. Methods of collecting data.
2	Conditional probability. Independent events. Additive and multiplicative laws. Bayes theorem and inverse probability. Problems.	Summarizing classification (attribute) data. Dichotomy. General multichotomy. Measures of association: Q, tetrachoric r, mean-square contingency, biserial η.
3	Repeated trials and Bernoulli's theorem. The concept of a statistical population. Binomial distribution. Derivation of the Poisson distribution from the binomial as a limiting case. Stirling's formula. Normal approximation to the binomial.	Univariate variable or scaled data: finite populations. Frequency table, polygon, distribution. Determining class intervals. Location measures: arithmetic, geometric and harmonic means, median, midrange, mode, index numbers. Dispersion measures: variance and standard deviation, mean deviation, range, quartiles and deciles, coefficient of variation. Skewness. Kurtosis.
4	Expectation and variance of a random variable with special reference to the Binomial and Poisson distributions. Problems of deductive inference on Binomial and Poisson distributions.	Some infinite or hypothetical populations. Binomial. Multinomial. Poisson. Normal. Transformations. Uniform. Fitting frequency data. Normal and uniform random numbers. Population parameters.
5	Concepts of inductive inference illustrated by examples from Binomial and Poisson distributions. Point and interval estimation, tests of significance, first and second kind of errors, power, decision rules.	Bivariate and multivariate data and regression analysis with fixed X's. Bivariate normal. Marginal and conditional distributions. Correlation and regression coefficients. Multivariate normal distribution. Regression analysis.
6	Minimax principle, maximum likelihood, precision of an estimate, operating characteristics of a procedure. Moments and moment generating functions. The Pearsonian system of distributions, with special reference to the normal, Type VII, Type III and Type I distributions. Distribution of the mean of n independent Poisson variates.	Sampling Methods. Universe and population. Statistics. Uses of samples: estimation (point and interval), testing hypotheses (decision making). Random sampling: with and without replacement. Design of surveys and experiments.
7	Convolution of distributions, with examples illustrating normal convergence in specific cases. Statement and significance of some typical forms of the law of large numbers and central limit theorem. No rigorous proofs to be attempted.	Sampling experiments for normal, uniform and binomial infinite populations and a finite multimodal population. Extensive sampling from normal populations using IBM equipment. Laboratory sampling. Comparison of measures of location: arithmetic mean, median, midrange. Comparison of measures of dispersion: variance and standard deviation, range, mean deviation from median.
8	Transformation of variables including the general linear, orthogonal linear, and polar transformation with use in the derivation of distributions. Distribution of any linear function of n independent identically distributed normal variates, in particular the mean.	Standard error of mean. Central-limit theorem and law of large numbers. Linear functions. Comparison of means: normal deviate and t-tests.

Week	Theory	Analysis
9	Distribution of the sum of squares of n identically distributed independent normal variates with zero mean and unit variance. The distribution of s^2. Problems of deductive inference related to normal variates.	Comparison of variances: χ^2 and F-tests. Confidence limits for means and variances and binomial p. Power of tests: one and two-tailed tests.
10	The t and F distributions. The significance of a mean. The test of hypothesis of equality of means or variances of two normal population on the basis of independent random samples from each population.	Sampling experiments for Bivariate normal and regression analysis with fixed X's. Correlation and regression coefficients. Error of estimate. Fisher's z-transformation. Confidence limits and tests of significance. Summary of sampling experiments.
11	Analysis of variance, one way classification only, with fixed or normally distributed class effects.	Enumeration statistics. χ^2-tests of goodness-of-fit when all probabilities given in advance: assumptions, single degrees of freedom. Goodness-of-fit tests when certain parameters are estimated from the data.
12	Concepts of inductive inference illustrated with reference to normal variates. The multinomial distribution.	Contingency tables: general two-way classification, binomial and Poisson series, 2×2 table, (exact tests). Empirical sampling in laboratory. Testing goodness-of-fit for previous sampling.
13	The χ^2 test of goodness of fit. The treatment of contingency tables.	Control charts and sequential sampling. Control charts for means, ranges and proportions. Sequential testing for proportions, means, and standard deviations: operating characteristic curve, average sample number.
14	The binormal distribution. The distribution of the correlation coefficient.	Non-parametric methods. Sign test. Runs test. Rank correlation. Wilcoxon rank-sum test.
15	Fisher's z transformation of the correlation coefficient. Concepts of inductive inference illustrated with reference to Binormal variables.	Sample surveys. Random, systematic and judgment samples. Estimation of errors. Tests, confidence limits, size of sample.
16	Fundamentals of the use of observations for statistical inference. Point estimation—consistency, efficiency and sufficiency of point estimators. Maximum likelihood estimates. Information.	Simple regression. Linearizing transformations. Heteroscedasticity and weighting. Analysis of variance. Confidence limits and tests of significance.
17	Interval estimation. Tests of significance. First and	Multiple Regression. Polynomials. Abbreviated Doo-
18	second kind of errors. Power. Neyman Pearson Lemma and its applications. Uniformly most powerful tests. Locally unbiased tests. Risk functions and decision rules.	little method. Adjusted and unadjusted estimates. Analyses of variance. Confidence limits and tests of significance.
19	Likelihood ratio and other heuristic methods of getting over-all good tests.	Basic sampling and experimental designs. Stratification. Randomized blocks. Latin squares.
20	Elements of sequential inference.	Confidence limits, tests of significance, summary of results. Replication needed for desired precision. Principles of design and analysis.
21	Elements of non-parametric inference.	Relative efficiency. Missing data. Non-parametric methods.
22	The general linear model for analysis of variance with fixed effects. Linearly estimable and non-estimable functions. The fundamental theorem of linear estimation. Least squares. The variance of the best linear estimate.	Incomplete block designs. Balanced incomplete blocks.
23	Degrees of freedom and sums of squares. The generalized t and F tests.	Principles and uses of complex designs. Relative efficiency.
24	Multiple classification and interaction.	Factorial data. Surveys and experiments. Single degrees of freedom: problems of choosing contrasts, multiple comparisons.
25	Regression and multiple correlation.	Confounding. Fractional replication. Disproportionate frequency data.
26	Simple applications to experimental designs. Randomized blocks. Balanced incomplete blocks.	Covariance. Simple and multiple. Tests of significance, estimates of error, confidence limits. Concept of covariance adjustments. Limitations.
27	Latin squares. Missing observations.	Variance components for nested sampling. Allocation of sample. Estimation of components. Sampling errors and confidence limits. Random and non-random effects.
28	Component of variance models.	Variance components with random interactions.
29	Inter-block information.	Mixed models. Split-plot designs.
30	Analysis of covariance with the general linear model.	Transformations. Non-normal and heteroscedastic data. Examples.

Special Topics in Mathematics for Statisticians

Elementary properties of determinants. The minors of a determinant. The product of determinants. Jacobi's theorem and its extensions. Symmetrical and skew-symmetrical determinants.

Definitions and elementary properties of matrices. Transpose, adjoint and reciprocal of a matrix. The rank of a matrix. Determinants associated with matrices. Alternative approach to the notion of rank by vectors and vector spaces. Simple properties of linear transformations and orthogonal matrices. General solution of a system of linear equations homogeneous or non-homogeneous.

Review of fundamental ideas and techniques of differential and integral calculus. Jacobians. Jacobians of general and orthogonal linear transformations. Jacobian of the general polar transformation. Transformation of multiple integrals.

Beta and Gamma functions and Dirichlets multiple integrals (Treatment from the point of view of real variables only).

Complex variables. Simple illustrations of multivalued functions. Complex integration. Cauchy's theorem. Theory of residues. Poles and essential singularities. Taylor's and Laurent's expansions. Convergence of series and integrals. Power series. Contour integrals with illustrations from sampling distributions. Characteristic functions. Inverse theorem.

Theory of quadratic forms. Transformation of quadratic forms under linear transformations. The positive definite and positive semi-definite forms. The characteristic equation and latent roots. Canonical forms associated with one or two matrices.

Special functions of real and complex variables: Beta and Gamma functions; Bessel functions I, J, K, and hypergeometric functions. Orthogonal polynomials and functions: Hermite, Laguerre and Legendre. Elements of Fourier series.:

QUESTIONS AND ANSWERS

Edited By ERNEST RUBIN

*U. S. Department of Commerce
and American University*

During the 1930's data relating to unemployment in the United States were inadequate and estimates of unemployment made by private and public organizations varied by many millions. With the sharp decline of unemployment during World War II public discussion of unemployment in the United States diminished. Since the war there has been particular interest in and discussion of this subject when increases of unemployment have occurred. The increase in unemployment late in 1953 and early in 1954 stimulated a renewed discussion of this subject. Sparking the interest in the unemployment picture was the release for January 1954 of two unemployment estimates by the U. S. Bureau of the Census that varied by about 700,000. One estimate was based on the sample that had been in operation since 1943 and the other was based on a newly introduced revision of this sample. Editorials in the New York Times (e.g., February 18, 1954, "Who are the Unemployed?") as well as comments and articles in other newspapers and magazines throughout the nation indicated widespread criticism of the disparity in the government's figures.

A number of persons have requested a discussion of the difference between the old and the new survey results. We wish to thank Mr. Morris H. Hansen, Assistant Director for Statistical Standards of the Bureau of the Census for the following discussion.

After several years of planning, the Census Bureau redesigned the sample and operating procedures for its Current Population Survey. The new sample, which is spread over 230 areas (primary sampling units) was introduced in February 1954 after a period of preparatory work and testing. It replaces the 68-area sample that was placed in operation in 1943. The same number of households is included in the new sample as in the old but they are spread over the enlarged number of areas. Both samples are multistage probability samples of the noninstitutional population of the continental United States, with a uniform overall sampling fraction for all classes of the population.

The fundamental principles of sampling followed are the same for the two samples, but some advances have been introduced in the redesign. The new survey design provides for a more efficient use of field supervisors and includes a system of statistical quality control of field operations as well as a broader coverage of areas. Consequently, with the new design, more information is obtained per unit of cost.[1]

The survey work was initiated in one-third of the new areas in November 1953, two-thirds were in operation in December, and the entire sample was in operation on a "dry-run" basis in January 1954. The 68-area sample was continued through this period as the basis for the published statistics and was operated in February, also, to provide further comparison with the new sample. In January the results from the two surveys were reasonably consistent for most items, but for a few items important differences were observed. For unemployment, in particular, the new estimate exceeded the old by about 30 percent, a difference greater than could have been explained by sampling variability. It might be noted, however, that one survey gave an estimate of approximately 4 percent of the labor force unemployed, and the other approximately 5 percent; from some points of view the difference is not large, even though statistically significant, for an item which sometimes involves the evaluation of attitudes in its measurement.

The use of a probability sample made it possible to estimate the differences that might reasonably occur from the change in samples, and thus made it clear either that the sampling operations had not been carried out in accordance with the specifications or that differences in measurement or response must account for an important part of this difference between the two survey results. Failure to find important departures from the sampling specifications led to the inference that an important part of the difference resulted from other factors.

One might expect that new interviewers recently recruited and trained in the measurement of the rather difficult concepts involved might be the principal source of difference, and that as these new interviewers acquired more experience the results from the new survey would approximate those of the old. Undoubtedly this was a factor, but it appeared not to be the principal one.

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[1] For a fuller description of the new design, see *Current Population Reports*, Series P-23, No. 2 and *The American Statistician*, page 5, "Sample Redesign and New Estimation Procedure for Current Population Survey."

On the contrary, evidence indicated that the old sample, more than the new, was yielding results that were out of line. For example, the new sample was providing higher estimates of some of the marginal classes of the unemployed and of other labor force categories, and past experience had indicated that more careful work was needed to identify more of these marginal cases. Also, during the last few months of 1953 and especially in January 1954, the number of persons receiving unemployment insurance benefits had become an increasingly higher fraction of total unemployment as estimated from the 68-area survey, and a considerably higher fraction than had been observed at most dates in earlier years.

One factor that might explain this appeared to be particularly important. During the period of introducing the new sample in the field, beginning in September 1953, the supervisors had been instructed to concentrate their attention on recruiting and training the staff for the new survey, and on getting the new sample into operation. The experienced interviewers were to carry on for several months with training and review of their work by mail. This was a sharp change in procedure—this staff had been accustomed to continued personal attention. At the same time, most of the experienced interviewers probably were hearing that shortly their jobs would be terminated, even before they were officially notified.

This type of reasoning suggested that the performance of the experienced interviewers might have deteriorated, and that it would be desirable to reinforce the training activities in the old sample as well as the new before the February survey. Accordingly, an additional special training session was arranged in February for the interviewers in both the 68-area and 230-area designs.

The results in February came considerably closer together—sufficiently close that the differences might be explained as entirely due to sampling variability. There was, however, some supplementary evidence that some other factors might still be present, although in a considerably lesser degree than in January. It appeared, that because of the retraining, or perhaps as a result of the widespread publicity of the difference in the unemployment estimates and the effect this publicity might have had on the interviewers, or perhaps because of both of these and other factors, the differences were largely removed in the February survey. The 68-area sample was discontinued in March.[2]

Table 1 shows the estimates of the major labor force characteristics for January and February from both samples, together with the sampling errors of the differences between the estimates.

TABLE 1

Employment status	230-area sample (1000's)	68-area sample (1000's)	Difference (d) (1000's)	Estimated standard error of diff. (s) (1000's)	$\frac{d}{s}$
January					
Civilian labor force	62,840	62,137	703	591	1.19
Nonag. emp.	54,469	54,433	36	756	.05
Ag. emp.	5,284	5,345	−61	353	−.17
Unemployed	3,087	2,359	728	188	3.87
February*					
Civilian labor force	64,079	63,491	588	603	.98
Nonag. emp.	54,535	54,480	55	757	.07
Ag. emp.	5,761	5,626	135	376	.36
Unemployed	3,780	3,385	395	233	1.70

* The February estimates for the 230-area sample given here differ from the published estimates which are based on a composite estimating method. The estimates given here are based entirely on the February sample and are the appropriate estimates for this comparison.

In accordance with the original plans, a system of statistical quality control has been introduced in the new design involving re-interviews of a subsample of households each month. This not only will serve as an aid to supervision but tabulations of the re-interviews should provide a signal to possible future difficulties. Also, research on improved questionnaire design, interviewing methods, and other methods for more adequate control of measurement errors is continuing.

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[2] A committee consisting of Frederick F. Stephan, Chairman, Lester Frankel, and Lazare Teper was appointed by the Secretary of Commerce to review the problems raised by the changeover of the CPS sample. This committee concurred with the Census proposal to discontinue the 68-area sample after February.

ELECTION OF NEW FELLOWS

At the Annual Meeting of the Association in Montreal the Committee on Fellows announced the election of Fellows for 1954. The following persons were elected:

Irving W. Burr, Professor of Mathematics, Purdue University, exponent of sound mathematical statistics in Statistical Quality Control, author of an important new book in this field, and Professor in charge of Purdue University's program in Mathematical Statistics.

Paul C. Clifford, Associate Professor of Mathematics, State Teachers College, (N. J.), educator of tomorrow's teachers in classroom and factory, devisor of important visual aids to explain the New Science of Statistical Quality Control, and member of the United Nations team to foster adoption of Quality Control techniques in India.

Maxwell R. Conklin, Chief, Industry Division, Bureau of the Census, for bringing about major advances in industrial censuses, sample surveys and the measurement of physical output through substantial improvements in method as well as content, and for important contributions to many international conferences on statistics of industrial production.

Florence N. David, Reader in Statistics, University College, University of London, author of many substantial papers on the mathematical theory of statistics; lucid writer for the non-mathematician; teacher whose students are influential in many lands; scientific adviser to the Beach Clearance Committee after the war; research worker during the war doing crucial experimentation, field work and statistical analysis relative to home security and land mines.

F. J. Divisia, Paris, France, eminent French economist, whose contributions to econometrics and mathematical statistics have won him international renown.

Allen L. Edwards, Department of Psychology, University of Washington, a psychologist whose interest in measurement of attitudes and personality variables has led to books and articles clarifying the use of statistical methodology in this field.

Paul Horst, University of Washington, distinguished contributor to statistical theory applied to the psychology of prediction, judgments, test construction, and personnel research, working with equal effectiveness in industry, in the armed forces, and in the academic world.

Clyde V. Kiser, Milbank Memorial Fund, New York, distinguished demographer and sociologist whose statistical investigations of human fertility have added much to our knowledge of the processes of population change.

Donald Mainland, Professor of Medical Statistics, New York University, an outstanding medical statistician, whose research and writings have been directed with notable success towards improving the planning, conduct and interpretation of medical research.

Eli S. Marks, Project Director, National Opinion Research Center, for his contributions in the fields of attitude surveys, sampling and response research, including noteworthy advances in the measurement of non-sampling errors in various types of survey operations.

J. T. Marshall, Assistant Dominion Statistician of Canada, for his contributions in stimulating the development and adoption of important new techniques for the collection and tabulation of census data in Canada and for his long continued effective participation in international conferences devoted to the improvement of statistical techniques and administration.

Herbert Solomon, Teachers College, Columbia University, contributor to the improvement of statistical method through his own researches; through his work as chairman of the program committee for the 1953 meeting of the American Statistical Association; and through his work as Head of the Statistics Branch of the office of Naval Research, where he succeeded in uniting the University Community and the Defense Department in a joint attack on unsolved problems, and where the programs he set up were a crucial factor in the rapid expansion of graduate training and theoretic research.

NEWS ABOUT MEMBERS

Wroe Alderson is one of the two men who received the 1954 Parlin Memorial Award which is conferred annually by the American Marketing Association on those whose achievements in marketing are outstanding.

Thomas C. Atkeson, Assistant Commissioner of the Internal Revenue Service in charge of research and planning activities, is retiring after 36 years in Government service to accept an appointment to the Chair of Taxation which is being established at the College of William and Mary in Williamsburg, Virginia.

Donavon Auble has assumed duties as Associate Professor of Psychology at Western College for Women in Oxford, Ohio.

Guenther Baumgart, formerly Manager of the Membership Department, Chicago Association of Commerce and Industry, has accepted the position of Executive Director of the American Home Laundry Manufacturers' Association, Chicago, Illinois.

Paul C. Clifford will be in Europe for a year as a consultant for the Organization for European Economic Co-operation under the sponsorship of the Foreign Operations Administration. He will be working on the Statistical Quality Control Program as a part of the effort for increasing productivity.

Ira A. De Armon, Jr. is now working as Bio-Statistician, Process Development Division, Camp Detrick, Maryland. He was formerly a statistician at the Chemical Corps Medical Laboratories, Army Chemical Center, Maryland.

Paul M. Densen has resigned from the staff of the Graduate School of Public Health, University of Pittsburgh to take up his new duties as Director of Research and Statistics of the Health Insurance Plan of Greater New York.

James R. Duffett is a member of the Technical Staff at White Sands Proving Ground as an Analytical Statistician, Engineering.

John W. Enell, formerly Assistant Professor of Industrial Engineering at New York University, has been appointed Director of the Management Information Service of the American Management Association.

W. Duane Evans has returned to the Bureau of Labor Statistics as Chief of the Office of Statistical Standards, upon completion of a year's study at Cambridge, England on a Rockefeller Public Service Award.

Glen G. Foster has been named to the post of Associate Engineer in the Endicott, N. Y. Engineering Laboratory of International Business Machines Corporation.

Oliver J. C. Francis has returned to Kingston, Jamaica after successfully completing all requirements for an M.S. degree in statistics at Iowa State College in July. He will work as a statistician in the Central Bureau of Statistics for the Jamaican government.

John E. Freund is spending the academic year as a visiting professor in the Department of Statistics at the Virginia Polytechnic Institute.

Max Garchik, formerly a statistician in the Federal Civil Defense Administration, has transferred to the Post Office Department, where he is a records analyst in the field of records management.

Frederick Gehlmann has joined A. T. Kearney & Company, management consultants, in Chicago. He is a member of the firm's industrial and personnel staff.

Leon Greenberg, who has been Acting Chief of the Division of Productivity and Technological Developments, has been appointed Chief of the Division.

Creighton N. Guellow of the Washington Office of the Agricultural Estimates Division, Agricultural Marketing Service, has been appointed head of the Maryland Office of the Agricultural Estimates Division.

Bruce Hanchett, formerly with the interindustry economics research project of the Office of Statistical Standards, Bureau of the Budget, and more recently in private industry, has joined the staff of the Council for Economic and Industry Research, in Washington.

H. O. Hartley, lecturer in the Department of Statistics, University College, London, has accepted a position as professor on the permanent staff of the Department of Statistics and Statistical Laboratory, Iowa State College. Dr. Hartley had been visiting Professor of Statistics at Iowa State College since July 1, 1953. He recently had the D.Sc. degree in mathematical statistics conferred on him by the University of London for his published contributions in the field of mathematical statistics.

George R. Hays has been elected Financial Vice President of Laclede Gas Company, St. Louis, Missouri, distributors of natural gas within St. Louis and St. Louis County. Mr. Hays was formerly Assistant to the Financial Vice President of Illinois Bell Telephone Company, Chicago.

John R. Hills is now an Associate in the Research Department, Educational Testing Service, Princeton, New Jersey.

C. Morris Horowitz has received a leave of absence from the American Association for Jewish Education to serve as Statistician on the Survey Committee of the Jewish Education Committee of New York. He is also lecturer in the Department of Economics, Brooklyn College.

Harold F. Huddleston has transferred to the newly formed Research and Development Staff of the Agricultural Estimates Division, Agricultural Marketing Service, in Washington, D. C., which is conducting large-scale pilot studies and basic research to improve techniques of forecasting crop production.

J. S. Hunter received his Ph.D. in Statistics from The Institute of Statistics, North Carolina State College, in June and is now employed by the American Cyanamid Company, New York City.

David V. Huntsberger received a Ph.D. degree with statistics major in June 1954 from Iowa State College. His thesis is entitled, "An extension of preliminary tests of significance permitting control of disturbances in statistical inferences." He plans to remain at Iowa State College where he is Assistant Professor in the Department of Statistics.

Stanley L. Isaacson has returned to his position as Assistant Professor of Statistics at Iowa State College after spending a year on leave of absence at Stanford University as visiting Assistant Professor of Statistics.

Sidney Jaffe, formerly Acting Chief of the Division of Interindustry Economics, has been named Assistant Chief of the Division of Construction Statistics, Bureau of Labor Statistics.

James M. Jarrett, who has been a member of the Excess Profits Tax Council for a number of years, has accepted an appointment as Assistant Director of the Statistics Division of the Internal Revenue Service.

William G. Kashnig has been transferred to Minneapolis to serve as Market and Economic Research Analyst for the North Central Home Office of the Prudential Life Insurance Company.

Raymond Kassler is now employed by RCA, RCA Victor Division in Camden, New Jersey as Development Engineer. His work consists of mathematical analysis of electronic circuits. Before going to RCA he was employed at the Ford Instrument Company, Long Island City, N. Y.

Dudley Kirk has resigned as Chief of the Planning Staff, Office of the Special Assistant for Intelligence, Dept. of State to join the staff of the Population Council, Inc., in New York.

Richard O. Lang is on leave from his position as Economist and Business Research Manager of S. C. Johnson & Son, Inc., Racine, Wisconsin to be Deputy

Director of the Office of Industrial Resources, Foreign Operations Administration, in Washington.

Karl Laubenstein, formerly with the Verney Corporation, is now employed by the Textile Economics Bureau, Inc., New York City.

Regina Loewenstein's present position is Field Consultant, Division of Social Research, National Tuberculosis Association, New York City.

Harriet Lubin has transferred from the Statistics and Reports Division of the Foreign Operations Administration to the U. S. Operations Mission to France, where she is Chief of the Statistics Division.

Wendell Macdonald, who headed the BLS European Productivity Measurement Team, has returned to his regular position as Director of the New England Regional Office of the BLS.

Allen L. Mayerson, Principal Actuary of the New York State Insurance Department, has obtained a leave of absence to accept a Fulbright Scholarship to do graduate work in mathematical statistics and insurance practices at the University of Paris (The Sorbonne). He was formerly with the National Surety Company and the Institute of Life Insurance.

John Monroe, associate in the Statistical Laboratory Survey Group, has resigned from Iowa State College to accept the position of Head, Survey Operations Unit, in the Offices of the Consolidated University of North Carolina. He will be located in Chapel Hill to engage in planning and conducting sample surveys.

Russell T. Nichols has transferred from the Washington to the Santa Monica office of the RAND Corporation.

Robert M. Norman, formerly Assistant Professor of Statistics at the University of South Dakota, is now Manager of Personnel Statistics for General Mills, Inc., Minneapolis. His new work entails the computation and analysis of personnel statistics covering such activities as internal and external compensation, the employee organization structure of the company, and employee attitude and opinion studies.

Carl R. Ohman, formerly a graduate student at Princeton University, is now on active duty with the U. S. Army as a lieutenant, stationed in Washington, D. C.

Donald B. Owen has resigned as Assistant Professor of Mathematics at Purdue University to accept a position as a staff member with the Sandia Corporation, Albuquerque, New Mexico.

Robert H. Parrish received his M.B.A. from New York University in June and is now with the Miles Laboratories, Inc., of Elkhart, Indiana, as a statistician in the Marketing Research and Statistics Department.

Stuart A. Rice, Assistant Director for Statistical Standards, U. S. Bureau of the Budget, has been elected an Honorary Fellow of the Royal Statistical Society.

Philip M. Ritz, formerly with the Division of Interindustry Economics, Bureau of Labor Statistics, is now associated with Leon Keyserling in the Conference on Economic Progress, a research organization studying various aspects of full employment.

Charles D. Roberts, Captain, AGC, is now Chief of Psychological Testing, Armed Forces Examining Station, Jacksonville, Florida.

Harry G. Romig was awarded the Shewhart Medal at the Annual Meeting of the American Society for Quality Control, and delivered the Shewhart Medal Address. The Los Angeles Section of the American Society for Quality Control, of which he is Chairman, received the Management Award, as being the best-managed section in the national Society.

Alan Ross, Research Associate in the Survey Group of the Statistical Laboratory, Iowa State College, has accepted the position of Research Associate for teaching and research in the Department of Bio-Statistics, School of Public Health, University of Pittsburgh.

Marion M. Sandomire has left the New York office of the Atomic Energy Commission to become Staff Statistician of the U. S. Naval Radiological Defense Laboratory, San Francisco.

Douglas E. Scates is on leave of absence from the University of Florida to take charge of the research program of the American Social Hygiene Association in its newly formed Education Division. The Education Division is interested in furthering research which contributes to personal and family living.

Emil D. Schell has resigned from the Office of the Comptroller in the Department of the Air Force to accept a position with the Ford Motor Company.

Robert F. Schweiker received the degree of Doctor of Education from Harvard last June. His dissertation was "Individual Space Models of Certain Statistics." He recently started work on human engineering projects at the Pittsburgh office of the American Institute of Research.

John A. Scoville is an analyst in the Securities Investment Department of the Equitable Life Assurance Society of the U. S., in New York.

George W. Snedecor has been elected an Honorary Fellow of the Royal Statistical Society "in consideration of the eminent services rendered to statistics."

Henry M. Steele is working toward a Ph.D. at Indiana University where he also has a teaching fellowship in statistics.

Boris Stern, Special Assistant to the Commissioner of Labor Statistics, has retired after 30 years of Government service. He plans to work in Israel, where he recently spent a year and a half on a special assignment with the United Nations Technical Assistance Administration.

Glenn W. Sutton has entered upon his new duties as Commissioner, U. S. Tariff Commission, to which position he was appointed by President Eisenhower in July.

Edward P. Swan, Social Science Analyst in the Consultation and Training Section, Office of the Coordinator, International Statistics, Bureau of the Census, has accepted a temporary assignment as a technical adviser in Teheran, Iran.

Joseph V. Talacko, Assistant Professor of Mathematics, is on leave of absence from Marquette University in Milwaukee for the academic year 1954–55. He has a Ford Foundation Fellowship and plans to spend most of the year at the Statistical Laboratory, University of California in Berkeley, and to visit several West Coast universities.

John S. Thompson has retired from business and now resides in Glen Ridge, New Jersey.

Andrew Ungar, Associate Engineer with the Armour Research Foundation of the Illinois Institute of Technology, has been transferred from the Chicago Laboratories to project work at the Army Chemical Center in Maryland.

Clarence M. Weiner has been appointed Economist of the Cigar Manufacturers Association, New York City.

William Weinfeld, formerly with the National Income Division and the President's Commission on the Health Needs of the Nation, and more recently with the Small Defense Plants Administration, has been named Chief of the Research and Statistics Division of the Office of Carrier Accounts and Statistics, Civil Aeronautics Board.

Samuel S. Wilks, Professor of Mathematical Statistics at Princeton University, has accepted an appointment as co-editor with Walter A. Shewhart of the Wiley Publications in Statistics.

A. W. Wortham was on leave of absence from Chance Vought Aircraft for the period September 1953 through May 1954 to be a member of the Statistical Laboratory at Oklahoma A. and M. College and to finish his work for a Ph.D. degree. His thesis title was "On Estimates Of Variance Components."

RESOLUTION HONORING STUART A. RICE

A resolution expressing appreciation to Dr. Stuart A. Rice upon the eve of his retirement from Government service was approved by the membership of the American Statistical Association at the Montreal meeting. The resolution was introduced by Mr. Herbert Marshall prior to his presidential address. Mr. Marshall's remarks and the formal resolution were as follows:

"It is with much satisfaction that I perform a special task which has been assigned to me.

"The man who has just occupied the chair, Dr. Stuart Rice, will, as you are doubtless aware, retire from his position as Director of the Office of Statistical Standards in the Bureau of the Budget next January.

"This was thought to be a fitting occasion to pay honour to one to whom honour is due. Dr. Rice has been one of the most outstanding members of this Association and has contributed much to its success. I am sure he will continue this role for, though he is relinquishing his present position in the United States Government Service, I know he is not retiring merely to tend his garden of roses. However, the opportunity has been seized to pay him a well-deserved tribute for what he has already achieved in the development of statistical information and in the improvement of statistical standards.

"You are well aware of his great contributions to these ends in the United States; but he has exercised his knowledge and wisdom far beyond the confines of your country. It has been my privilege to work with him in international efforts and I can speak with feeling of his service in these wider fields.

"At the close of World War II the International Statistical Institute was in a moribund condition. He breathed into it the breath of life and it is now very much a going concern—an excellent academy for the discussion of statistical problems by experts from all countries.

"He was the prime mover in the organization of the Inter-American Statistical Institute which is playing such an important role in the development and improvement of statistics in the countries of the Americas.

"When the Economic and Social Council of the United Nations was set up, one of its first actions was to arrange for the creation of a statistical organization. A nuclear commission was appointed of which Dr. Rice was Chairman, to make recommendations concerning functions and structure. From the recommendations emerged the existing statistical commission and the statistical office.

"The achievements of the Commission in promoting: the development of statistics on a world-wide scale, in setting standards for international comparability, in disseminating information on statistical methods,

are recognized as one of the important services of the United Nations. Much of the success is due to the unflagging energy, the enthusiasm and the vision of Stuart Rice.

"For his many valuable contributions to the cause of statistics and in anticipation of more to come, in behalf of the Association I am to present Dr. Rice with this resolution which has been approved by the Board and Council of the Association—I suggest that your endorsement be manifested by a very hearty clapping of hands."

"RESOLUTION

"*Whereas* Stuart A. Rice has announced his intention to retire from Government service on December 31, 1954 after twenty-one years devoted to strengthening statistical activities of the United States Government; and

"*Whereas* during this period, as head of the Office of Statistical Standards in the Bureau of the Budget and of its predecessor, the Central Statistical Board, he has provided constant leadership, resourcefulness and strength in the development of a coordinated statistical system for the Government as a whole; and

"*Whereas* he has made notable contributions toward the achievement of greater balance in the statistical program of the Government and of increased efficiency in the conduct of statistical programs, and has promoted improvement in the accuracy and usefulness of the Government's statistical data through review of agency programs, establishment of standard definitions and classifications, and other means; and

"*Whereas* as head of the Office of Statistical Standards and thus responsible for administration of the Federal Reports Act, he has won wide praise from the business community for his successful endeavors in reducing the reporting burdens imposed by Federal questionnaires; and

"*Whereas* he was instrumental in the establishment of the Statistical Office and Statistical Commission within the structure of the United Nations, thereby providing for improved statistical techniques and procedures on a world-wide scale; and

"*Whereas* as United States Representative on the United Nations Statistical Commission since its establishment in 1946 he has displayed a high order of leadership, skill and ingenuity in working toward greater adequacy and comparability of world statistics; and

"*Whereas* he has served with distinction in national and international statistical organizations, as

President of the American Statistical Association in 1933, as one of the founders of the Inter-American Statistical Institute and its First Vice President from 1941 to 1950, and as President of the International Statistical Institute from 1947 to 1953;

Now, therefore, be it

Resolved, That the American Statistical Association, on behalf of its members and statisticians generally, express profound appreciation to Stuart A. Rice for his distinguished record and his abiding achievements, both nationally and internationally, as a statistical statesman; and further express the fervent hope that his exceptional talents will be available to the professional world for many years to come."

LETTERS TO THE EDITOR

Dear Sir:

Upon reading the Report of the Ad Hoc Committee on Statistical Standards it occurred to me that the problem could be made more specific in order to facilitate advancement toward standards. The Section on Training has discussed this problem a number of times at committee meetings and was impressed with the wide diversity of activities coming under the general head of Statistics. Any common standard for this wide area is impossible even if one attempts to describe only a small portion of the training period or a small portion of the skills necessary to practice. It would seem that progress could be made only for categories of statisticians and even there a wide range remains.

Any committee carrying forth the recommendations made in the report under review should be asked to define at least generally some of the categories which the membership can consider for standards. It would be expected that some individuals would fall in only one category and others would qualify for several.

As an indication of possible categories I mention, Survey, Mathematical, Biometric, Business and Economics, Public Health. Several levels in each category would no doubt be necessary but could not be included at an early stage.

Sincerely yours,
W. J. Dixon

July 30, 1954

Dear Sirs:

The excellent report on the Ad Hoc Committee on Statistical Standards makes reference to the work on the APA Committee on Test Standards.* It is still too early to have a mature perspective on that work, but some comments on the differences that committee found between technical recommendations and ethical standards may be of use to the ASA.

1. Our experience confirms the desirability of making such recommendations a consensus of best present practice rather than an attempt to impose perfection. In writing technical recommendations, however, the collection of incidents by survey techniques proved unnecessary. Committee members found that they themselves could readily compile examples of good and poor practice, using such sources as critical reviews of tests.

2. Technical recommendations seem more useful than technical "standards". A "recommendation" draws attention to a desirable practice, but clearly leaves the way open for a professionally-qualified person to decide on some other course in a particular situation. The term "standards", particularly coupled with the idea of "enforcement", beclouds matters of technical judgment with ethical implications. Technical *recommendations* can be perceived as a helpful compilation of matters to take into account, rather than as a chalkline to be toed under threat of punishment.

3. Our committee found that specialists of all types were of great help in pointing out ambiguities or pitfalls in proposed recommendations. We profited more from criticisms solicited from particular consultants than from preliminary publication to obtain volunteered comments.

4. It is relatively simple to obtain consensus on what types of information should be published about test development, and what types of misleading statements should be avoided. Our committee abandoned as premature or unwise any attempt to specify in general what research should be carried out on a test or how that research should be conducted. Recommendations about the presentation of statistical information will probably be supported by the very persons who would resist any attempt to prescribe statistical *procedures*.

There is every reason to think that ethical standards could benefit the profession of statistics, particularly through assisting young members to profit from experience of others. Writers, students, editors, and consumers of statistical service will be aided by technical recommendations. It should be mentioned, as one advantage easily overlooked, that the preparation of such documents involves a large creative element—not just polling and collating. In such a task, new issues come to light in both the professional and technical spheres whose formation and clarification carries the finished product some distance beyond the concepts available at the start of the project.

Sincerely,
Lee J. Cronbach
Professor of Education
(Formerly Chairman, APA Committee on Test Standards)

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* See "Technical Recommendations for Psychological Tests and Diagnostic Techniques", *Psychological Bulletin*, 51, No. 2, Supplement, March 1954, 38 pp.

CHAPTER NOTES

ALBANY

At the annual business meeting held on June 9th the following officers were elected:

President, ABBOTT S. WEINSTEIN.

Vice President, DR. SYLVIA L. PARKER.

Secretary-Treasurer, ROBERT E. PATTON.

AUSTIN

New Officers elected at the June 15th meeting are as follows:

President, JOHN H. HARGROVE.

Vice President, RICHARD C. HENSHAW, JR.

Secretary, STELLA TRAWEEK.

BOSTON

At the annual meeting held on June 10th the following officers were elected for the 1954–55 fiscal year:

President, DR. PHILIP J. RULON, Harvard University.

Vice President, JOHN E. ALMAN, Boston University.

Secretary, DOROTHY MYERS.

Treasurer, EUGENE E. BURLINGAME.

Councillors, DR. SYBIL P. BINDLOSS, Liberty Mutual Ins. Co., and DR. NATHAN GRIER PIKE, 3RD.

The speaker of the evening, Dr. Andrew M. Gleason, discussed "The Theory of Games" and added interest to his subject by his choice of illustrations, which included the application of the theory to a game of chess and to a two-handed game of poker.

CENTRAL INDIANA

The general theme for the 1953–54 season activities was "decision-making". The upward trend in attendance continued during the year. The subjects and speakers at the meetings were as follows:

October 15—Multiple Factor Analysis—James A. Norton, Jr., Purdue University; and Richard H. Shaw, U. S. Naval Ordnance Plant.

November 12—Purdue Statistical Laboratory open house, and discussion of the use of statistics in economics, by Dr. Leonard Hurwicz, University of Minnesota.

December 10—Projecting a Few Trends—Prof. William Andrews, Indiana University.

January 11—The Logic of Statistical Inference—George Horwich, Indiana University.

February 11—Forum on statistical problems of chapter members—panel discussion led by Dr. Virgil Anderson, Purdue University; Dr. Julius Blum, Indiana University; and John Hanson, Eli Lilly & Co.

March 11—The Statistician's Role in Operations Research—Dr. Charles R. Hicks, Purdue University.

April 8—Battery Additives—Dr. E. P. King, Eli Lilly & Co.

May 20—Some Problems in the Use of Surveys in Decision-Making.—Stephen B. Withey, Survey Research Center, University of Michigan.

The election and installation of new officers took place at the May meeting. These officers are:

President, PAUL IRICK.

1st Vice President, RICHARD H. SHAW.

2nd Vice President, EDGAR KING.

Secretary-Treasurer, DONALD L. CHEAK.

CENTRAL NEW JERSEY

The meeting on May 11th heard an address by W. J. Netschert, retiring President, on the subject, "Some Progress in the Analysis of Factors Affecting the Funding of Unemployment Compensation". Mr. Netschert is Senior Supervisor, Reports and Analysis, in charge of research, N. J. State Division of Employment Security. The following new officers were elected:

President, DR. JOHN Q. STEWART.

Vice President, DR. ROBERT HOOKE.

2nd Vice President, DR. MARGUERITE F. HALL.

Secretary-Treasurer, DR. WILLIAM B. SCHRADER.

CHICAGO

The dinner meeting on May 17th heard Herbert Marshall, President of the American Statistical Association and Dominion Statistician of Canada, speak on "The Role of the Dominion Bureau of Statistics." At the luncheon meeting of May 20th Dr. Bert Hickman, Professor of Economics at Northwestern University, discussed "Statistical Indicators of Business Cyclical Changes".

The Annual Forecast Meeting was held on June 10th. John K. Langum, President of Business Economics, Inc., spoke on "What's Ahead for the American Economy", and the Chapter's own prediction of the economic outlook, based on a poll of the members, was given. Members had been asked to forecast four key economic indexes for October 1954 and April 1955—total personal income, total civilian employment, industrial production (FRB Index) and wholesale prices (BLS Index).

The new officers for 1954–55 are:

President, JOHN S. COULSON, Leo Burnett & Co.

Vice Presidents:

Dinner Meetings—ADOLPH O. BERGER, U. S. Bureau of Labor Statistics.

Luncheon Meetings—RUDOLF T. ERICSON, Illinois Bell Telephone Co.

Membership—ELIZABETH J. SLOTKIN, Illinois Dept. of Labor.

Secretary, LAWRENCE R. STICKLER, R. R. Donnelley & Sons.

Treasurer, GENEVA K. RITTER, U. S. Railroad Retirement Board.

Directors: ARTHUR CHAROUS, Sears Roebuck & Co., WESLEY D. MITCHELL, Peoples Gas Light & Coke Co., ROBERT H. PERRY, U. S. Dept. of Commerce, ARTHUR J. O'HARA, Northern Trust Co., HARRY V. ROBERTS, University of Chicago.

CLEVELAND

At a meeting on April 20th the following officers were elected for the 1954–55 season:

President, CLARK E. ZIMMERMAN.

Vice President, FRED C. LEONE.

Secretary, J. CECIL ROWE.

COLUMBUS

The Chapter has elected the following officers for the year 1954–55:

President, CAMPBELL R. GRAFF, JR.

1st Vice President, DR. LELAND C. LEHMAN.

2nd Vice President, CHALMERS A. MONTEITH.

Secretary-Treasurer, M. V. CONDOIDE.

The programs of the meetings during the 1953–54 year were as follows:

November 18—Trends in College Age Population, 1940–1970—Dr. Ronald B. Thompson, Registrar and University Examiner, Ohio State University.

January 20—Techniques for Analyzing Consumers' Demand—Dr. John Lansing, Institute for Social Research, University of Michigan.

February 17—Economic Prospects for Columbus—John J. Mackin, Director of Research, Columbus Chamber of Commerce.

April 21—Practical Uses of Statistics in Retailing: Application of Statistics to Personnel, Buying, Sales, Investment, and Forecasting—Vernon A. Watts, Controller, F and R. Lazarus & Co.

May 19—Specialized Electronic Equipment as Applied to the Field of Statistics—Bruce Moncreiff, Principal Mathematician, Battelle Memorial Institute.

CONNECTICUT

The new officers for 1954 are:

President, DAVID F. VOTAW, JR., Yale University.

Vice President, CHARLES H. W. SEDGEWICK, University of Connecticut.

Secretary, ROGER STARK, University of Connecticut.

DAYTON

The May 6th meeting heard Robert House of the System Dynamics Organization, Wright-Patterson Air Force Base, speak on the "Office of Air Research Automatic Computer." Mr. House gave a very interesting description of the operation of the computer, illustrating his talk with colored slides.

The last meeting of the year was held June 3rd. The speaker was Manny Tabackman, Statistician for the Community Welfare Council, who talked on "Statistics in Social Work." He discussed some of the statistical methods used in analyzing social service data, and mentioned some of the steps being taken to improve social conditions—for example, to decrease the rate of juvenile delinquency. The following officers for 1954-55 were unanimously elected:

President, CYRIL G. PECKHAM, University of Dayton.

Vice President, MANNY TABACKMAN, Community Welfare Council.

Secretary-Treasurer, FLOYD E. SMITH, Wright-Patterson Air Force Base.

DENVER

A panel meeting was held May 13th, the subject of which was "Problems of Statistical Education." Discussion was led by a distinguished panel representing government, business and education. Roland A. Mandat, first Vice President, served as moderator and the other panel members were:

Paul Jedamus, Assistant Professor of Statistics, University of Colorado

Timon Walther, Acting Head, Statistical Department, University of Wyoming

F. L. Carmichael, Chairman of the Department of Statistics and Research, University of Denver

Julian Dombrowski, Executive Secretary, Citizens-Labor-Management Commission, City and County of Denver

George Nez, Assistant Planning Director, City and County of Denver

Dennis E. Stump, Director of Research and Statistics, Denver Department of Welfare

C. C. Powell, Consulting Actuary, Coates, Herfurth, and England

Edward Sirovatka, Supervisor of Statistical Reports, United Air Lines

J. A. Murphy, Manager of Statistical Production, United Air Lines

The last meeting of the year was a dinner meeting held on June 8th. Paul R. Merry delivered the presidential address on the subject, "Some Reflections on the Requisites for Professional Advancement: A Synthesis of the Year's Program."

The following persons have been elected for the 1954-55 year:

President, HENRY C. MOSHER, Statistician, The Mountain States Telephone & Telegraph Co.

1st Vice President, SHELBY HARPER, Director, Legislative Council, State Capitol.

2nd Vice President, HELEN M. KRAEMER, Supervisor, Employment Statistics Section, Bureau of Labor Statistics.

Secretary-Treasurer, GENE ORMAND, Statistician, Blue Cross.

Directors: F. L. CARMICHAEL, G. E. HAWKINS, CHARLES POWELL, EDWARD BRYANT, ROLAND MANDAT, PAUL R. MERRY (ex officio—past president).

HAWAII

At the April 27th dinner meeting a panel of four members discussed the functions of the statistician in Hawaii. Charles F. Congdon acted as moderator, and the panel members were: Mrs. Maureen Stevens of the Department of Labor, T.H.; Mrs. Louise Franzen, research consultant; Richard H. Clark of the Mathematics Department, University of Hawaii; and Henry B. Clark, Jr., of Castle & Cooke, Ltd.

Rent control was the subject of the June 17th dinner meeting. William E. Miles, Director of Oahu rent control administration, defended his department's policy of decontrolling rents slowly by "rent brackets" instead of suddenly dropping all controls. Other members of the panel were: Ferdinand J. H. Schnack, who spoke on the legal aspects of rent control, maintaining it was unconstitutional; Dr. Raymond Franzen, who discussed planning and carrying out rent surveys; and Robert Schmitt, who described the history of Hawaii's rent survey.

The luncheon meeting of July 23rd heard a talk by Dr. Edward P. Coleman, Professor of Engineering, U.C.L.A. Dr. Coleman, who was a visiting professor at the University of Hawaii during the summer session, spoke on "Industrial Applications of Statistics."

UNIVERSITY OF ILLINOIS

Officers for the 1954-55 year were elected at the May meeting of the Chapter. They are as follows:

President, F. G. CORNELL, Department of Education, University of Illinois.

President-Elect, VINCENT I. WEST, Department of Agricultural Economics, University of Illinois.

Secretary, CHARLES F. WRIGLEY, Department of Psychology, University of Illinois.

LOS ANGELES

The speaker at the dinner meeting of May 27th was Dr. George Dantzig of the Rand Corporation in Santa Monica, who discussed "Applications of Linear Programming". The June 24th dinner meeting heard Stanley M. Lanham, civil engineer with the Los Angeles Transit Lines, in a talk called "A Transit Man Looks at Statistics." Mr. Lanham discussed the use of statistics in transit operations.

The last meeting of the summer was held on July 29th. Bernard Hecht, former Manager of the Quality Control Division of RCA-Victor Corporation, Engineering Products Section, and at present in business for himself as a consultant, spoke on "Management Reporting with Simple Statistics."

MILWAUKEE

New officers for the 1954-55 year are as follows:

President, GEORGE W. KNICK, Marquette University.

Vice President, NORMAN J. KAYE, Marquette University.

Secretary-Treasurer, WILLIAM A. GOLOMSKI, Marquette University.

Recording Secretary, VIRGINIA ALTENHOFEN, Chain Belt Company.

Directors: JAMES R. HELBERT, Red Star Yeast Co., ISABELLE HOWARD, Y. M. C. A., JAMES B. SCHULTZ, The Boston Store, QUENTIN V. ZILLIG, Ladish Corporation, Cudahy, Wis.

SACRAMENTO

Nine dinner meetings were held by the Sacramento Chapter during 1953-54. The record for attendance was set in February, when Dr. A. C. Kinsey addressed the Chapter on the statistical problems involved in the collection of sociological data by mass interviews.

Other featured speakers during the year included Dr. Lester Breslow, Di-

NEW CHAPTER AT STATE COLLEGE, PENNSYLVANIA

The Board of Directors granted a charter to the State College Chapter at its May meeting. An organization meeting of the chapter had been held on March 30th, at which a constitution was adopted and the following officers were elected:

President, DR. MORRIS MENDELSON   *Vice President*, DR. ROBERT E. CLARK   *Secretary-Treasurer*, DR. HENRY R. FORTMANN

ASA members in the State College vicinity are invited to contact Dr. Fortmann, Department of Agronomy, College of Agriculture, Pennsylvania State University, for information regarding meetings and other activities of the Chapter.

rector of Study for the President's Commission on the Health Needs of the Nation, and Dr. Morton Kramer, Chief of the Biometrics Branch of the National Institute of Mental Health.

One meeting was devoted to a panel discussion of standards for the training, utilization, and selection of statisticians for state service.

The following officers were elected by the Chapter to serve for 1954–55:

President, NORMAN RUDY, Professor of Statistics, Sacramento State College.

Vice ·President, RICHARD MORGAN, Statistical Research Officer, California State Department of Mental Hygiene.

Secretary-Treasurer, WILBUR PARKER, Assistant Chief of Research and Statistics, California State Department of Employment.

Councillor, JOHN MARSHALL (President Emeritus) Senior Statistician, Division of Research and Statistics, California State Board of Equalization.

Councillor, RICHARD LAZANSKY, Senior Financial Research Technician, Division of Budgets and Accounts, California State Dept. of Finance.

Councillor, MAURICE STRANTZ, General Economist, Operations and Maintenance, U. S. Bureau of Reclamation.

SEATTLE

The Board of Directors at its May meeting approved the request of the Pacific Northwest Chapter to change its name to the Seattle Chapter. It was noted that the change does not imply that the Chapter will cover any less area than formerly, since it has previously been located in the city of Seattle.

ST. LOUIS

The meeting of May 19th was devoted to a panel discussion of "The Physical Inventory of St. Louis". Members of the panel were E. A. Freund, Planning Coordinator, Union Electric Co., who described the means used by the Union Electric in compiling data on Census Tracts in the metropolitan area and the uses made of such data; Irvin Sobel, Assistant Professor of Economics, Washington University, who discussed the size, composition and changes in the Negro population of St. Louis; and James Appel, of Roy Wenzlick & Co., who reported on the recent estimates of metropolitan area population made by the Metropolitan Census Committee, of which he is Chairman.

On June 2nd a joint luncheon meeting was held with the St. Louis Chapter of the American Marketing Association. The topic was the "Mid-Year Business Review and Outlook," and the speakers were William J. Abbott, Jr., Director of Research of the Federal Reserve Bank of St. Louis; and George Coleman, Staff Economist of the Mercantile Trust Company.

Washington University and the St. Louis Chapter of the ASA jointly sponsored a Forecasting Seminar on May 27th. Professor Werner Hirsch of the Department of Economics, Washington University, led the meeting. Participation was limited to research directors of leading business, banking and research companies in the St. Louis area.

WASHINGTON

At the May 17th meeting a panel of speakers discussed the report of the Intensive Review Committee to the Secretary of Commerce entitled, "Appraisal of Census Programs." Members of the panel were Robert W. Burgess, Director, Bureau of the Census; Lazar Teper, Director, Research Department, International Ladies' Garment Workers' Union; Stephen Du Brul, Executive in Charge Business Research Staff, General Motors Corp.; and Donald C. Riley, Deputy Chief, Office of Statistical Standards, Bureau of the Budget. Messrs. Du Brul and Teper were members of the Intensive Review Committee.

At the annual business meeting preceding the program the following officers were elected for 1954–55:

President, HARRY ALPERT, National Science Foundation.

Vice President, WALT SIMMONS, Bureau of Labor Statistics.

Secretary-Treasurer, MARGARET MARTIN, Budget Bureau.

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